

BULLETIN OF MISCELLANEOUS INFORMATION No. 7 1928 ROYAL BOTANIC GARDENS, KEW

XXXVIII.—THE GENUS *ASTREBLA* OR MITCHELL GRASSES. C. E. HUBBARD.

The genus was first proposed by F. Mueller (Fragm. Phytogr. Austral. x. 76: 1876) for *Danthonia pectinata* Lindl. and *D. triticoides* Lindl. Two years later a generic description was given in the Flora Australiensis (vii. 602), when the above two species were transferred to *Astrebla*. A variety was at the same time added by Benthams, namely *A. triticoides* var. *lappacea*, based on *Danthonia lappacea* Lindl.; this has recently been revived as a species by Domin (Biblioth. Bot. lxxxv. 372: 1915) under the name *Astrebla lappacea* Domin. A fourth species *A. elymoides* was described by F. Mueller (ex F. M. Bailey in Illustr. Monogr. Grasses Queensl. t. 8: 1879).

With regard to the affinities of this endemic Australian genus, relationships with other genera are best sought for among Australian grasses. The genus appears to be most closely allied to *Triodia*, especially such species as *T. lanigera* Domin and *T. Mitchellii* Benth. These species have very similar florets to those of *Astrebla*. The lemma is conspicuously three-lobed, rounded and pilose on the back, and becomes indurated at maturity, whilst the palea also resembles that of *Astrebla*. The rachilla of the spikelet however is articulated between the florets, while the inflorescence is paniculate. The genus also shows affinities with *Danthonia*, especially with some of the Australian species.

The species of *Astrebla* are well known Australian grasses, renowned for their drought resistance and fodder value and prized by pastoralists in Australia. Breakwell (Grasses and Fodder Plants of New South Wales, p. 285) states that from a pastoral standpoint they are to be considered as one of "our great national assets." Their thick wiry roots penetrate the earth to a great depth and enable the plants to withstand the most protracted drought, their foliage remaining green when many other kinds of grasses are withered up. They quickly respond to rain, their growth being stated as phenomenal; old root stocks send out shoots and the stems sprout at the nodes, producing shoots which rapidly grow to maturity. Although grasses of coarse habit with stems and leaves comparatively tough, they are nevertheless said to be much relished by stock and to make excellent hay. According to Turner the seeds at one time furnished the aborigines with a large proportion of their food.

The species of *Astrebula* are widely distributed throughout Central and Northern Australia, preferring the heavier alluvial soils and are practically absent from the southern portion of the continent. They are commonly known as "Mitchell Grasses," after their discoverer, Sir. T. L. Mitchell; *A. pectinata* is known as "Common Mitchell Grass," *A. squarrosa* as "Bull or Wheat-eared Mitchell Grass," *A. lappacea* as "Curly Mitchell Grass," and *A. elymoides* as "Hoop or Weeping Mitchell Grass."

In Queensland the species of *Astrebula* are among the commonest and most valuable of grasses and it is at the request of Mr. C. T. White, of Brisbane, that this revision has been undertaken. He has kindly forwarded abundant Queensland material to Kew, and it is hoped that the confusion in the nomenclature has now been settled as far as it can be done from herbarium specimens.

GENERIC DESCRIPTION.

Spikelets lanceolate to broadly elliptic-oblong in profile, sometimes becoming cuneate, laterally compressed to almost terete, sessile or subsessile, alternately biseriate and secund, generally loosely to densely imbricate on the continuous tough triquetrous rhachis of solitary or paired terminal spikes or spike-like racemes; rhachilla disarticulating above the glumes and not between the lemmas. *Florets* 2-9, the lower 2-4 perfect, the upper sterile and reduced, the uppermost frequently reduced to the entire part of the lemma. *Glumes* slightly unequal, keeled, subpersistent, usually acute or acuminate, sometimes mucronate, glabrous, firmly membranous to chartaceous; lower glume linear-lanceolate to ovate, 2-9-nerved; upper glume ovate-lanceolate to broadly elliptic, 7-13-nerved. *Lemmas* usually deeply 3-lobed, coriaceous, dorsally rounded, silky-villous at the base and on the entire part of the back; middle lobe tapering from a broad base into a tough straight or curved bristle which is sometimes hooked; lateral lobes similar to the middle lobe or wider and flattened, ranging from linear or lanceolate to semi-ovate, usually more erect, tough, or scarious and shining, 1-5-nerved. *Paleas* lanceolate to elliptic, acuminate, dorsally compressed, 2-keeled, with the keels ciliate, firmly membranous to chartaceous. *Lodicules* 2, truncate. *Anthers* 3, linear. *Ovary* glabrous; styles distinct, short, terminal; stigmas plumose, terminally exserted. *Caryopsis* oblong or elliptic in outline, dorsally compressed, loosely enclosed in the hardened lemma and palea; hilum basal; embryo small. *Tufted perennial grasses*; blades narrow; ligules reduced to ciliate rims.

KEY TO THE SPECIES.

Spikelets 3-8 mm. wide (excl. bristles), ovate, oblong to broadly oblong or elliptic, becoming wedge-shaped and gaping, loosely to densely imbricate in slender to stout spike-like racemes 4-30 cm. long by 0.75-2 cm. wide (excl. bristles) or sometimes

distant in the lower part of the racemes ; internodes between the spikelets in the middle portion of the raceme usually 3-6 cm. long ; rhachis scaberulous ; spikelets 3-9-flowered, rhachilla joints between the florets less than 1 mm. long :

Lobes of lemmas similar, finely acuminate and tapering into rigid and tough bristles, middle lobe 6-10 mm. long, becoming reflexed, lateral lobes 5-8 mm. long, all or some occasionally hooked ; lemmas densely and long silky-villous on and around the inner lateral nerves from the base upwards, the remainder glabrous or nearly so.....1. *squarrosa*.

Lobes of lemmas different in shape, middle lobe narrowed from a triangular base into a slender rigid unhooked bristle, lateral lobes semi-lanceolate to semi-ovate ; lemmas villous all over the entire portion of the back :

Racemes 4-13 cm. long by 1-2 cm. wide ; spikelets densely imbricate ; lower glume 5-9-nerved ; lateral lobes of lemmas very conspicuous, chartaceous with broad scarious margins2. *pectinata*.

Racemes 5-30 cm. long, 0.5-1 cm. wide ; spikelets usually loosely imbricate ; lower glume usually 1-3-nerved ; lateral lobes of lemmas firmly chartaceous to coriaceous...3. *lappacea*.

Spikelets 2-3 mm. wide, lanceolate to linear-oblong, from more than their own distance apart to overlapping up to half their length, in slender racemes 12-35 cm. long by up to 0.3 cm. wide ; internodes between the spikelets in the middle portion of the raceme 6-11 mm. long ; rhachis usually smooth, rarely scaberulous ; spikelets 2-4-flowered, rhachilla joints between the florets 2-4 mm. long.....4. *elymoides*.

1. *Astrebla squarrosa* C. E. Hubbard, sp. nov. ; affinis *A. lappaceae* (Lindl.) Domin, sed foliis et tuberculatis, racemis latioribus, spiculis majoribus, lobis lemmatum similibus tenuiter acuminatis differt.

Astrebla triticoides var. *lappacea* Benth. Fl. Austral. vii. 603 (1878) quoad specim. et descr. Turner, Grasses N.S.W. 8 (1890) ; Austral. Grasses, 14 (1895) ; in Agric. Gaz. N.S.W. i. 312 (1890), ii. 646 (1891) ; Proc. Linn. Soc. N.S.W. xxix. 179 (1904), xxx. 88 (1905). Maiden, Usef. Nat. Pl. Austral. 78 (1889) ; Man. Grasses N.S.W. 144 (1898). Maiden and Betche, Census N.S.W. Pl. 23 (1916).

Astrebla lappacea Domin in Biblioth. Bot. lxxxv. 372 (1915) quoad ic. et specim., non *Danthonia lappacea* Lindl. The specimens, etc. cited by Domin and Benthham under *A. lappacea* and *A. triticoides* var. *lappacea* respectively, are not conspecific with those of *Danthonia lappacea* Lindl. Both the specimens and figures cited by Domin and Benthham will have to form the basis of a new species, *A. squarrosa* C. E. Hubbard.

Astrebla triticoides F. M. Bailey, Syn. Queensl. Fl. 660 (1883) ?, Cat. Queensl. Pl. 57 (1890) ? Ewart and Davies, Fl. North. Territ. 45 (1917). Breakwell, Grasses and Fodder Pl. N.S.W. 237, f. 118, no. 1 (1923) non F. Muell.

Astrebala pectinata var. *triticooides* F. M. Bailey in Queensl. Dept. Agric. Bot. Bull. xiii. 15 (1896) ; Queensl. Fl. vi. 1897, t. lxxxix (1902); Compreh. Cat. Queensl. Pl. 628 (1913). There is a specimen in the Kew Herbarium communicated by F. M. Bailey, bearing the above name and a printed description, this matches Bentham's *A. triticooides* var. *lappacea*.

A leafy tufted *perennial*, densely coated at the base with persistent leaf-sheaths. *Culms* erect from a short rhizome, eventually spreading, 20-150 cm. high, slender to moderately stout, terete above, more or less compressed below, finely striate, simple or branched upwards, up to 7-noded, glabrous, rough just beneath the inflorescence. *Leaves* glabrous; sheaths slightly compressed and keeled to terete, loose to moderately tight, firm, smooth; ligules reduced to very narrow ciliate rims up to 0.5 mm. long; blades linear, from a narrow base long and finely acute, 7-40 cm. or more long, 3-6 mm. wide, flat or folded, ascending, flexuous to rigid, smooth or with the upper surface and margins rough. *Spike-like racemes* solitary, flattened, including the bristles 7-18 (rarely less to 4) cm. long and 1.5-3 cm. wide (1-1.75 cm. wide, excl. bristles), long exserted or enclosed at the base in the uppermost leaf-sheath; rhachis 1-1.25 mm. wide, rounded and very finely striate on the back, densely scaberulous; pedicels 1.5-2.5 mm. long, adpressed, densely scaberulous. *Spikelets* closely imbricate, oval-oblong to broadly elliptic-oblong, slightly laterally compressed to almost terete, usually 8-11 mm. long by 4-8 mm. wide (excl. the bristles) or up to 2.5 cm. long in the lowest spikelet of the raceme. *Lower glume* linear-lanceolate to lanceolate when flattened, finely acute to acuminate and shortly mucronate, 5-10 mm. long (except in the lowest spikelet), firmly membranous to subchartaceous, glabrous, 2-3-nerved; *upper glume* elliptic-ovate to elliptic, finely acute to acuminate and shortly mucronate, 6.5-11 mm. long (except in the lowest spikelet), subchartaceous with scarious margins, 7-12-nerved. *Florets* 6-9, densely imbricate, becoming smaller upwards, the lower 3-4 perfect, the remainder sterile, the uppermost reduced to the entire portion of the lemma. *Lowest lemma* including the lobes 12-15 mm. long, the entire portion broadly oblong-elliptic to almost square when flattened, 4.5-6.5 mm. long by 4.5-5.5 mm. wide, coriaceous, 5-7-nerved, densely and long silky-villous from the base upwards on and around the inner lateral nerves, the margins and central portion of the back glabrous or nearly so; lobes very similar, rigid, tough, of equal length or the middle longest, at first erect, afterwards spreading, the middle lobe or all becoming reflexed and frequently hooked; lateral lobes subulate, finely acuminate, 5-8 mm. long, 1-2-nerved; middle lobe 6-10 mm. long, gradually tapering from a triangular base into a cylindrical stout bristle. *Palea* elliptic, acuminate, 6-7 mm. long, firmly membranous, keels densely ciliate. *Anthers* 1-2.5 mm. long, orange-yellow. *Caryopsis*

elliptic in outline, strongly dorsally compressed, 2.5-3 mm. long, 1.6-2 mm. wide, brown.

NORTHERN AUSTRALIA: Sturt's Creek and Hooker's Creek, *Mueller*!

QUEENSLAND: between Cloncurry and Camooweal, McKinlay Ranges and Buckley River, June-Dec. 1889, *Burton*! Hughenden, June 1919, *Hawthorn*! Muttaborra, north of Longreach, April 1919, *White*! Iffley Station, *Gulliver*! Darr River, near Longreach, *Burgh-Birch*! Longreach, April 1913, *Bick*! (type). Flinders River, Aug. 1926, *White*! Georgetown, *Green*! Prairie, Raglan County, *Chrisholm*! Suttor River, *Mueller*! without precise locality, *Bowman*!

NEW SOUTH WALES: between Darling River and Cooper's Creek, *Neilson*!

2. *Astrebla pectinata* (Lindl.) F. Muell.

Danthonia pectinata Lindl. in Mitch. Three Exped. Austral. ii. 26 (1838). F. Muell. Fragm. Phytogr. Austral. viii. 134 (1873), x. 76 (1876). This species was based on specimens collected by Mitchell in New South Wales near Condobolin, on April 6th, 1836. The type specimen is in the herbarium of the Cambridge Botanical Museum and consists of two pieces. On the same sheet are three fragments of the same species collected by Mitchell on his 1846 expedition, labelled "Victoria R." This is the species which is now called *Astrebla pectinata* F. Muell.

Astrebla pectinata F. Muell. ex Benth. Fl. Austral. vii. 602 (1878). F. Muell. First Census Austral. Pl. 134 (1882); Second Census, 225 (1889). Wools, Pl. N.S.W. 103 (1885). F. M. Bailey, Illustr. Monogr. Grasses Queensl. t. 9 (1879); Syn. Queensl. Fl. 659 (1883); Cat. Queensl. Pl. 57 (1890); Queensl. Fl. vi. 1896, t. lxxx. (1902); Compreh. Cat. Queensl. Pl. 628 (1913). Turner, Grasses N.S.W. 8 (1890); Austral. Grasses, 12, f. (1895); in Agric. Gaz. N.S.W. i. 311, f. (1890), ii. 644, t. lviii. (1891); in Proc. Linn. Soc. N.S.W. xxviii. 441 (1903), xxix. 179 (1904), xxx. 88 (1905); in Journ. Dept. Agric. W. Austral. xiii. 68 and 69, f. (1906). Tate, Handb. Fl. Extratr. S. Austral. 196, 269 (1890). Moore, Handb. Fl. N.S.W. 489 (1893). Maiden, Usef. Nat. Pl. Austral. 78 (1889); Man. Grasses N.S.W. 143 (1898). Peacock in Agric. Gaz. N.S.W. xiv. 579, 580, f. (1903). Maiden and Betche, Census N.S.W. Pl. 23 (1916). Domin in Biblioth. Bot. lxxxv. 370, f. 85 (1915). Ewart and Davies, Fl. North. Territ. 45 (1917). Black, Fl. South Austral. 83 (1922).

Astrebla pectinata var. *pectinata* F. M. Bailey in Queensl. Dept. Agric. Bot. Bull. xiii. 15 (1896); Queensl. Fl. vi. 1897 (1902). A specimen in the Kew Herbarium communicated by F. M. Bailey, bearing the above name and a printed description is typical *A. pectinata* F. Muell.

A densely tufted *perennial*. Culms erect from a short rhizome clothed with short firm cataphylls, 40-90 cm. high, slender, more or

less compressed below, terete above, simple or branched, 6-8- or more-noded, glabrous and smooth. *Leaf-sheaths* tight, finely striate, all glabrous and smooth or bearded at the mouth; ligules reduced to densely ciliate rims up to 1 mm. long; blades linear, from a narrow or slightly rounded base long and setaceously acute, 7-25 cm. long, 3-6 mm. wide, erect or spreading, flat, firm, glaucous, loosely and sparsely hairy above from tubercles to entirely glabrous, margins scaberulous. *Spike-like* racemes solitary, rarely paired, erect, compressed, 4-13 cm. long, 1.2-2 cm. wide, dense, straw-coloured; rhachis striate on the back, scaberulous; pedicels stout, adpressed, 0.5-2 mm. long, rarely almost obsolete. Spikelets oblong, becoming cuneate, densely imbricate, usually 10-17 mm. long, by 4-8 mm. wide, laterally compressed. *Lower glume* lanceolate to ovate, acute, sometimes mucronate, rarely obtuse, 7-14 mm. long, 5-9-nerved, chartaceous with scarious margins; upper glume ovate-lanceolate to ovate or elliptic, acute, mucronate, rarely obtuse, 8-13 mm. long, closely 7-16-nerved, chartaceous with scarious margins. *Florets* 4-7, the upper reduced and barren. *Lowest lemma* 12-17 mm. long, oblong when flattened, the entire portion 3-5 mm. long by 3-4 mm. wide, coriaceous and densely villous all over, 3-nerved; lateral lobes lanceolate to lanceolate-oblong, acute, 7-12 mm. long, 1-1.75 mm. wide, 3-5-nerved with the nerves towards the inner margin, outer margin broadly scarious; middle lobe tapering from a cuneate base into a bristle up to 12 mm. long; *upper lemmas* with shorter lobes, the uppermost reduced to the entire portion. *Paleas* ovate, acuminate, 4-6 mm. long, chartaceous, keels densely ciliate.

QUEENSLAND: between Cloncurry and Camooweal, McKinlay Ranges and Buckley River, June-Dec. 1889, *Burton*! Blackall, *Ranking*! Longreach, April 1913, *Bick*! Hermitage, State farm, near Warwick, *Liverseed*!

NEW SOUTH WALES: Belfield station, near Armidale, June 1922, *Helms*! Mt. Murchison, *Dallachy*! *Hance* 18555! (Herb. Mus. Brit.); near Condobolin, April 6th, 1836, *Mitchell* 60! (type of *Danthonia pectinata* Lindl.); Plains on the Bogan, August 15th, *Mitchell* 27! (Herb. Mus. Brit.); near Lachlan River, June 23rd, 1817, *Cunningham* 69! (Herb. Mus. Brit.); Strangford Plains, *Fraser*! (Herb. Mus. Brit., probably collected at the time same as *Cunningham* 69 on Oxley's Expedition); Murrumbidgee River, *Mueller*! (Herb. Mus. Brit.). Darling River, *Mueller*!

SOUTH AUSTRALIA: Vicinity of Lake Eyre, *Andrews* 19! 32! 33! 37! 204! Mt. Lyndhurst, March 1898, *Koch* 1!

WESTERN AUSTRALIA: Sturt's Creek, *Mueller*! Mulyie Station, Roebourne, March 1899, *Morrison*!

The leaves of this species are usually minutely tuberculate on the upper surface and margins and this character may aid in distinguishing sterile specimens of it from *A. squarrosa*. One of the specimens collected by Andrews (no. 32) near Lake Eyre was written

up by Bentham as *A. triticoides* var. *lappacea* and is apparently the specimen referred to by him from Lake Eyre, under that variety in the Flora Australiensis; it is, however, quite typical *A. pectinata*. This species shows very little variation in regard to the lobation of the lemmas and is easily distinguished from the other species on account of the prominent, papery and shining lobes.

3. *Astrebla lappacea* (Lindl.) Domin.

Danthonia lappacea Lindl. in Mitch. Three Exped. Austral. i. 313 (1838). F. Muell. Fragm. Phytogr. Austral. viii. 134 (1873); x. 76 (1876). This species was based on specimens collected by Mitchell in New South Wales near Bourke, on August 15th, 1836. Lindley's type specimen is in the herbarium of the Cambridge Botanical Museum and consists of two pieces, which are rather poorly developed, while several of the spikelets have already shed their florets. The specimens are identical with those of the species which has been known by most authors from Bentham onwards, as *Astrebla triticoides* F. Muell. They are quite different from the specimens and figures quoted by Bentham and Domin under *Astrebla triticoides* var. *lappacea* and *A. lappacea* respectively, which are referable to *A. squarrosa*.

Danthonia triticoides Lindl. in Mitch. Journ. Exped. Trop. Austral. 365 (1848). F. Muell. Fragm. Phytogr. Austral. viii. 134 (1873), x. 76 (1876). This species was based on specimens collected by Mitchell in Queensland, in the neighbourhood of Mitchell, on October 21st, 1846. The type specimen is in the Cambridge Botanical Museum Herbarium. It consists of three well developed pieces, which are identical with those which were described by F. Muell. ex Bentham in the Flora Australiensis as *Astrebla triticoides* and accepted as such by most later authors. They are, however, conspecific with the type specimens of *Danthonia lappacea* Lindl. and the name *Astrebla lappacea* (Lindl.) Domin must replace *Astrebla triticoides* (Lindl.) F. Muell., as it is based on the older of the two names proposed by Lindley.

Astrebla triticoides (Lindl.) F. Muell. ex Benth. Fl. Austral. vii. 602 (1878). F. Muell. First Census Austral. Pl. 134 (1882); Second Census, 225 (1889). F. M. Bailey, Syn. Queensl. Fl. 660 (1883)?; Cat. Queensl. Pl. 57 (1890)? Woolls. Pl. N.S.W. 103 (1885). Turner, Grasses N.S.W. frontisp., 8 (1890); Austral. Grasses, 13, f. (1895); in Agric. Gaz. N.S.W. i. 312, f. (1890); ii. 646, t. lix (1891). Tate, Handb. Fl. Extratr. S. Austral. 196, 269 (1890). Moore, Handb. Fl. N.S.W. 490 (1893). Maiden, Usef. Nat. Pl. Austral. 78 (1889); Man. Grasses N.S.W. 144 (1898). Peacock in Agric. Gaz. N.S.W. xiv. 580 (1903). Maiden and Betche, Census N.S.W. Pl. 23 (1916) excl. syn. Domin in Biblioth. Bot. lxxxv. 374, f. 87 (1915). Black, Fl. South Austral. 83, 84 (1922). Breakwell, Grasses and Fodder Pl. N.S.W. 237, f. 118, no. 2 (1923).

Astrebla triticoides var. *lappacea* (Lindl.) Benth. Fl. Austral. vii. 603 (1878) excl. specim. et descr.

Astrebla pectinata Breakwell, Grasses and Fodder Pl. N.S.W. 237, f. 118, no. 3 (1923) non F. Muell.

Astrebla pectinata var. *curvifolia* F. M. Bailey in Queensl. Dept. Agric. Bot. Bull. xiii. 15 (1896); Queensl. Fl. vi. 1897, t. lxxxii (1902); Compreh. Cat. Queensl. Pl. 628 (1913). There is a specimen in the Kew Herbarium, communicated by F. M. Bailey bearing the above name and a printed description. This is typical *Astrebla lappacea* (Lindl.) Domin.

Astrebla lappacea (Lindl.) Domin in Biblioth. Bot. lxxxv. 372 (1915) excl. ic. et specim. This is based on *Danthonia lappacea* Lindl.

A densely tufted *perennial*. Culms erect or geniculate ascending, eventually spreading, 30–80 cm. or more high, slender, compressed, usually branched, several-noded, glabrous and smooth. *Leaf-sheaths* tight, glabrous and smooth or hispid and tuberculate upwards; ligules reduced to densely ciliate rims up to 0.75 mm. long; blades linear, from a narrow or slightly rounded base long and finely acute, 8–30 cm. long, 4–5 mm. wide, flat, firm, glaucous, glabrous, usually tuberculate and scaberulous. *Spike-like racemes* solitary, or paired, slender to stout, straight, flexuous or curved, 5–30 cm. long, 5–13 mm. wide; rhachis 0.8–1.5 mm. wide, finely striate on the back, scaberulous; pedicels up to 0.8 mm. long. *Spikelets* very loosely to somewhat densely imbricate or distant in the lower part of the raceme, oblong or elliptic-oblong, becoming wedge-shaped, 7–13 mm. long (excl. awns), 2.5–5 mm. wide. *Lower glume* linear-lanceolate to ovate, acuminate and sometimes mucronate, 4.5–10 mm. long, 1–5 (rarely 7)-nerved, thinly chartaceous with scarious margins; upper glume ovate-elliptic to broadly elliptic, acuminate and sometimes mucronate, 7–13 mm. long, 7–13-nerved, chartaceous with scarious margins. *Florets* 4–6, the uppermost much reduced. *Lowest lemma* oblong when flattened, 8–13 mm. long, 3–5-nerved, shortly and densely villous all over the entire portion, the latter 2.5–4 mm. long by 3–4 mm. wide, firmly coriaceous; lateral lobes semi-lanceolate to semi-ovate, finely acute, 4–9.5 mm. long, 1–1.75 mm. wide, 3–4-nerved, firmly chartaceous to coriaceous with scarious margins; middle lobe tapering from a cuneate base into a rigid unhooked bristle 4–14 mm. long. *Palea* ovate, acuminate, 5 mm. long, chartaceous, keels densely ciliate.

QUEENSLAND: Townsville, 1908, *Weston*! Hughenden, June 1919, *Hawthorn*! Jondaryon, near Toowoomba, March 1916, *Mackenzie*! Muttaborra, north of Longreach, April 1919, *White*! Longreach, April 1913, *Bick*! Darr River, near Longreach, *Dallachy*! Peak Downs, near Clermont, *Burkell*! Bungeworgorai, between Roma and Mitchell, March 1914, *Soutter*! Currawillinghi, Belmore County, *Looker*! Near Mitchell, Oct. 21st 1846, *Mitchell*, 573! (type of *Danthonia triticoides* Lindl.); Boullia, *Bailey*! (Herb. Mus. Brit.).

NEW SOUTH WALES: near Bourke, August 15th, 1836, *Mitchell* 15! 27! (type of *Danthonia lappacea* Lindl.), both numbers are on the same label.

SOUTH AUSTRALIA: Mt. Lyndhurst, *Koch* 124! and without number!

WESTERN AUSTRALIA: between Gascoyne and Fortescue Rivers, *Mueller*! (Herb. Mus. Brit.).

A rather variable species which requires further study in the field in order to separate out the different forms. It varies in the size and habit of the racemes, in the density and size of the spikelets and in the length of the lobes and middle bristle of the lemmas. Like the preceding species, the upper surface and margins of the leaves are usually minutely tuberculate.

4. *Astrebla elymoides* F. Muell.

Astrebla elymoides F. Muell. ex F. M. Bailey, Illustr. Monogr. Grasses Queensl. t. 8 (1879). F. M. Bailey, Syn. Queensl. Fl. 660 (1883); Cat. Queensl. Pl. 57 (1890). Maiden, Usef. Nat. Pl. Austral. 77 (1889). Moore, Handb. Fl. N.S.W. 490 (1893). Turner, Grasses of N.S.W. 7 (1890); in Agric. Gaz. N.S.W. i. 310, f. (1890), ii. 647, t. lx. (1891); in Proc. Linn. Soc. N.S.W. xxviii. 441 (1903); xxix. 179 (1904); xxx. 88 (1905). Peacock in Agric. Gaz. N.S.W. xiv. 580 (1903). Domin in Biblioth. Bot. lxxxv. 376, f. 88 (1915). Maiden and Betche, Census N.S.W. Pl. 23 (1916). Ewart and Davies, Fl. North. Territ. 46, 365, t. v. (1917). Breakwell, Grasses and Fodder Pl. N.S.W. 238, f. 117 (left), f. 118, no. 4 (1923). I have been unable to find an earlier description and have accepted F. M. Bailey's description as the first valid publication of the species.

Astrebla pectinata var. *elymoides* F. M. Bailey in Queensl. Dept. Agric. Bot. Bull. xiii. 15 (1896); Queensl. Fl. vi. 1897, t. lxxxiii. (1902); Compreh. Cat. Queensl. Pl. 628 (1913); Maiden, Man. Grasses New South Wales, 144 (1898).

Danthonia elymoides F. Muell. ex F. M. Bailey, Illustr. Monogr. Grasses Queensl. t. 8 (1879).

A tufted leafy *perennial* grass up to 80 cm. or more high. *Culms* erect or geniculately ascending from a decumbent base; eventually spreading and drooping, slender, weak, more or less compressed, simple or more often branched, up to 5-noded, glaucous, glabrous and very smooth right up to the inflorescence. *Leaf-sheaths* firm, more or less keeled, glaucous, glabrous and smooth; ligules reduced to very shortly ciliate rims; blades linear, from a slightly narrowed or contracted base tapering to a long fine point, up to 20 cm. or more long, by 3-5.5 mm. wide, flat or rolled when dry, firm, erect or spreading, glabrous, usually rough above and on the margins. *Spike-like racemes* solitary, very slender, straight or curved, 12-35 cm. long, up to 0.3 cm. wide, eventually becoming long exserted from the uppermost leaf-sheath; rhachis up to 1.5 mm. wide, smooth or minutely scaberulous and finely striate on the slightly rounded back; pedicels reduced to short stout stumps up to 1 mm.

long. *Spikelets* distant by more than their own length in lower part of racemes, becoming loosely imbricate upwards, lanceolate to linear-oblong, 10-20 cm. long, 2-3 mm. wide, terete or slightly laterally compressed. *Lower glume* linear to lanceolate, 4.5-12 mm. long, 1-nerved; upper glume lanceolate to oblong-lanceolate, 11-17 mm. long, 7-11 nerved. *Florets* 2-4, the lower 1-2 perfect, the upper reduced. *Lowest lemma* with the entire portion 6-7 mm. long by 2-3 mm. wide, very shortly villous at the base; lateral lobes tough, rigid, linear, 1-9 mm. long by up to 0.5 mm. wide; middle lobe tapering into a slender rigid bristle 5-15 mm. long. *Palea* lanceolate, up to 7 mm. long, keels shortly ciliate. *Caryopsis* oblong, very obtuse, 4-6 mm. long.

NORTHERN AUSTRALIA: Upper Victoria River, Jan. 1856, Mueller!

QUEENSLAND: Hughenden, June 1919, Hamilton! Blackall, Ranking! Darr River, near Longreach, Burgh-Birch! Muttaborra, White! Iffley Station, Gulliver! Boulia, Bailey! (Herb. Mus. Brit.).

NEW SOUTH WALES: Murrumbidgee River, Mueller! (Herb. Mus. Brit.).

WESTERN AUSTRALIA: East Kimberley, 1901, Connor!

This species, as in the case of *A. lappacea* Domin, requires further study in the field. There are three distinct forms which may possibly be due to differences in habitat, etc.

I. Represented by a specimen sent out by F. M. Bailey with a printed description of *A. pectinata* var. *elymoides*; it is unlocalized and is not enumerated above. It is the only specimen seen which has a rough, striate rhachis; the spikelets are also above the average size and the middle lobe of the lemma is short.

II. Specimens collected by White at Muttaborra and at Iffley Station by Gulliver have spikelets much above the average size; the lobes of the lemma are longer, the lateral lobes ranging from 6-9 mm. long and the middle lobe and bristle from 13-15 mm.

III. The remainder of the specimens listed above fall into this group and may be considered typical of the species. They have the spikelets averaging 11-13 mm. in length; lower glume about 6.5 mm. long; upper glume 13-14.5 mm. long; lowest lemma 10-14 mm. long, with the lateral lobes 2-4 mm. long and the middle bristle 4-6 mm. long.

XXXIX.—A NEW SPECIES OF LILAEOPSIS FROM NEW ZEALAND. ARTHUR W. HILL.

In my paper on the genus *Lilaeopsis* (Linn. Soc. Journ. xlvii, 1927, p. 551) I doubtfully referred a specimen collected near Auckland by Cheeseman, to *L. lacustris*. When in New Zealand in January and February last, I had the pleasure of meeting Mr. H. Guthrie Smith of Tutira, Hawke's Bay, who in his interesting book "Tutira—The story of a New Zealand Sheep Station",—dealing

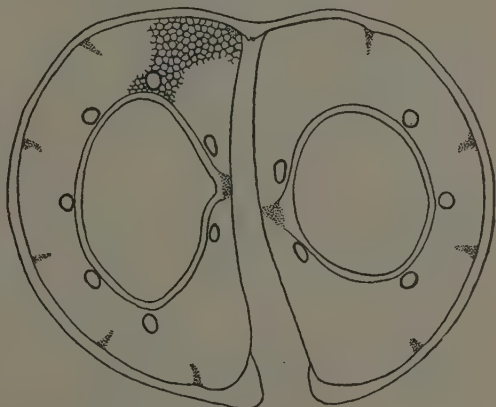
with the changes in the vegetation which have taken place on his Sheep Station due to the introduction of sheep, weeds, etc., during the past forty years, records the occurrence of *Lilaeopsis* (*Crantzia*) in one or two localities on his estate.

He has now kindly sent a set of specimens in flower and fruit to Kew which prove to be identical with Cheeseman's imperfect specimen, preserved at Edinburgh, and they represent a new species.

The Tutira *Lilaeopsis* is distinct from all others in the smooth rounded orbicular fruits, which are about as broad as they are long without any distinct ribs, the fruit wall being composed of a broad band of parenchymatous cells with an almost complete absence of sclerous tissue.

The genus is of common occurrence in New Zealand and specimens were found near the Franz Joseph Glacier, South Island, and on the shores of Lake Rotorua, North Island, forming almost a turf-like mat, but in neither case did they belong to the species from the east coast region.

♂ Natural
Size



Lilaeopsis orbicularis A. W. Hill.

***Lilaeopsis orbicularis* A. W. Hill, sp. nov.**; species fructibus orbicularibus sine costis conspicuis distincta.

Rhizoma repens. *Folia* 2.5-7 cm. longa, 0.5-1 mm. lata, attenuata vel folia breviora paullo spathulata, septis numerosis. *Umbella* 2-5-flora; pedunculi breves; pedicelli 0.75-1 cm. longi, fructu maturo curvati; bracteae involucri 1-2 mm. longae, ovoideae. *Fructus* orbicularis, 2-2.5 mm. longus, 2.25-2.5 mm. latus, costis rotundatis inconspicuis in sectione transversali, pericarpio magnis e cellulis parenchymatis sine cellulis scleroticis composito; vittae 5-7, quarum 2 commissurales.

NEW ZEALAND. North Island: Hawke's Bay; Tutira, Guthrie Smith (March 1928) in *Herb. Kew* (type); Auckland, Cheeseman (Dec. 1878) in *Herb. Edin.*

XL.—THE GENERIC NAMES MICONIA AND MYCONIA.
T. A. SPRAGUE.

The fact that the three generic names *Myconia* Neck. (1790, Compositae), *Miconia* Ruiz et Pav. (1794, Melastomaceae) and *Myconia* Lapeyr. (1813, Gesneriaceae) were given in honour of the same botanist, Francisco Micó of Vich in Catalonia, appears to have been generally overlooked.

Necker (Elem. i. 22) founded a new genus *Myconia* on "Quaed. Chrysanth. Linn." i.e. on *Chrysanthemum Myconis* L. Sp. Pl. ed. 2, 1254, which itself was based on *Chrysanthemum Miconi* (*Myconi*) Dalech. Hist. i. 873 (1587); this was one of over twenty Spanish species of which specimens, descriptions and figures were sent by Micó to Dalechamps, who included them in his 'Historia.' Micó's name was usually latinized by Dalechamps as "Myconus" but in at least five instances it appeared as "Myconius" (pp. 577, 656, 672, 736, 786).

Ruiz et Pavon (Prodr. 60) dedicated their genus *Miconia* as follows: "Genus nuncupatum D[omino] . . . Micon, Barcinonensi Medico egregio, et Botanico haud ignobili, ut patet ex Jacobi Dalechampii Historia plantarum Lugdunensi, ad quem earum figuras descriptiones et virium a se exploratorum notitiam mittebat."

Lapeyrouse (Hist. Pl. Pyren. i. 115) based his new genus *Myconia* on *Verbascum Myconi* L. Sp. 179, which is *Auricula ursi Myconi* Dalech. Hist. i. 837, another of the species sent by Micó to Dalechamps, and now known as *Ramondia Myconi* Reichb. Lapeyrouse quoted the following passage from Tournefort in explanation of the generic name "In ipso (Monteserrato) nascuntur rariores plantae. . . . Quamplures ex his descripsit olim Franciscus Myconus, medicus Ausoniensis (de Vic), qui Barcinone degebat ante plures annos; quas hodie plane ignoraremus, nisi ad Jacobum Dalechampium egregius ille vir eas perhumane misisset".

Colmeiro (Bot. Penins. Hisp.-Lusit. 213) listed the two names *Miconia* Ruiz et Pav. and *Myconia* Lapeyr. as having been dedicated to Francisco Micó, but overlooked *Myconia* Neck. His account (l.c. 155) of Micó may be translated as follows: "MICÓ (FRANCISCO). A physician and botanist, who was born at Vich in 1528 and studied pharmacy as well as medicine at Salamanca. He botanized in both Old and New Castile and in Extremadura, particularly in the Sierra de Guadalupe, as well as on Monserrate and other mountains of Catalonia. His excursions resulted in the discovery of various new species, of which he sent descriptions and figures to Dalechamps, in whose 'Historia generalis plantarum', published at Lyon in 1587, about thirty of them appeared, accompanied by eulogies well deserved by the botanist of Vich, who was then practising medicine at Barcelona."

At least two Spanish plants seem to have been first discovered by Micó, namely *Ramondia Myconi* (L.) Reichb. and *Thalictrum tuberosum* L. (*Oenanthe Myconi* Dalech. Hist. 785). *Chrysanthemum*

Myconis L. had been previously discovered in Italy. According to Caruel (Ill. Hort. Sicc. Caesalp. 48) it is represented in Cesalpino's herbarium (1563), and was recorded in his book, 'De Plantis', 494 (1583) in the following words: "Ad *Chrysanthemum* reduci videtur etiam apud nos quaedam in arvis folia ferens subhirsuta, in ambitu serrata, ut *Bellis maior*: caulem quoque rectum; flores aureos, specie *Chrysanthemi*."

Wittstein (Etym.-bot. Handwörterb. ed. 2, 577, 600, 601) derived *Miconia* from "D. Micon", mistaking the "D" of Dominus for the initial letter of a Christian name. He stated that *Myconia* Lapeyr. was derived from the mythical bear Mycon! This error seems to have arisen in the following way: Dalechamps figured the species now known as *Ramondia Myconi* under the name *Auricula Ursi Myconi*. This appears to have been mistranslated by Wittstein as "the ear of the bear Mycon" instead of "Micó's Bear's-Ear." The fact that *Auricula ursi Matthioli* is figured on the previous page should have prevented such an absurd blunder, as even Wittstein, who is responsible for many fantastic derivations, could hardly have mistaken the celebrated Italian botanist Mattioli for a mythical bear. Probably he did not consult Dalechamps' *Historia*. Under *Myconia* Neck., Wittstein states that Necker gives no derivation, though the derivation is obvious to a botanist, as soon as he finds that *Chrysanthemum Myconis* L. was the type-species.

Since *Miconia* Ruiz et Pav., *Myconia* Neck. and *Myconia* Lapeyr. were all derived from the name of the Spanish botanist Micó, latinized either as Miconius or Myconius, it seems clear that they should be regarded as mere orthographic variants of the same name. Hence under International Rules, Art. 51, 2°, only one of them can be accepted, and since *Miconia* Ruiz et Pav. is a nomen utique conservandum, the two others must be rejected.

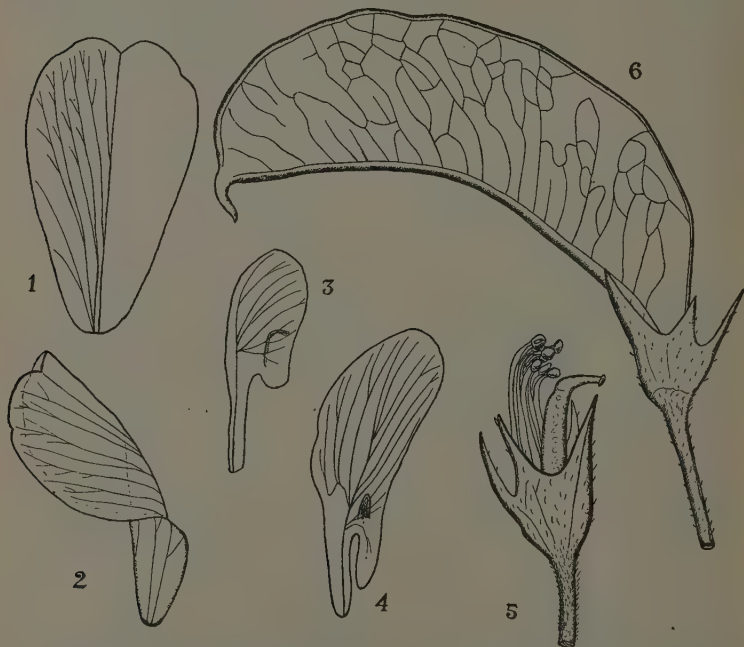
Myconia Lapeyr. is already treated as a synonym of *Ramondia* Rich. (1805), which is not invalidated by the prior homonym *Ramondia* Mirb. (1802) since the latter is itself invalid, being an absolute (i.e. nomenclatural) synonym of *Lygodium* Sw. (1801). *Myconia* Neck., however, has been accepted as a generic name by Schulz-Bipontinus (Webb et Berth. Phyt. Canar. ii. 245), and by Briquet and Cavillier (Burnat, Fl. Alp. Marit. vi. 76: 1916). The latter authors seem to have been unaware that the Spanish botanist commemorated in *Chrysanthemum Myconi* Dalech. was Micó, not Mycon. Since *Myconia* Neck. is invalid, the new name **Myconella** is here proposed for the genus typified by *Chrysanthemum Myconis* L. The type-species will now be known as **Myconella Myconis** (L.) comb. nov.

In order to avoid possible future disputes regarding the orthography of *Myconella*, it seems desirable to state that this spelling has been adopted deliberately, in order to obtain a euphonious name recalling *Myconia*. It is not intended for a diminutive of the latter, and there is therefore no justification for the addition of an "i" after the "n".

XLI.—A NEW MEDICAGO FROM CHINA. G. ŠIRJAEV.

Dr. G. Širjaev, of the Botanical Institute, Brno, Czechoslovakia, who has recently examined the material of *Medicago* and *Trigonella* in the Kew Herbarium, has forwarded the following description of a new species of *Medicago*.

***Medicago archiducis-Nicolai* Širjaev sp. nov.**; affinis *M. hybridae* Trautv. sed vexillo obovato-lanceolato-clinoideo alis subaequilongis nec obovato alis triente longiore, dentibus calycinis triangulari-lanceolatis tubo aequilongis nec linearibus tubo sesqui-duplo longioribus distincta est.



Medicago archiducis-Nicolai G. Širjaev. Fig. 1 et 2, vexillum; 3, carina; 4, ala; 5, calyx; 6, legumen. All $\times 2$.

Perennis? *Caules* tetragoni pilosiusculi. *Stipulae* superiores 7–13 mm. longae semiovatae basi sagittatae denticulatae acutae glabrae. *Folia* trifoliata petiolata, foliolis late ellipticis v. rarius late ovatis levissime denticulatis fere subintegris, apice retusis et breviter apiculatis, glabris, foliolis lateralibus 17–20 mm. longis, 13–14 mm. latis, terminali paulo majore et petiolulato (petiolulus 6–7.5 mm. longus). *Pedunculus* florifer folio duplo brevior, 1–2 cm. longus pilosus, fructifer plus minusve paulo elongatus (usque

3.5 cm. longus), folio paulo brevior. *Racemus* capitulatus 4-5 florus. *Pedicelli* 2 mm. longi pilosi, ante anthesin plus minusve stricti, floriferi fructiferique patuli; bractea lineari-subulata circiter 1 mm. longa, pedicello brevior. *Calyx* 4 mm. longus campanulatus pilosus, corolla duplo brevior, dentibus triangulari-lanceolatis tubo calycino aequilongis. *Corolla* 7-8 mm. longa, vexillo obovato-lateclinoideo emarginato alis subaequilongo, carina late ovata in parte quarta alis brevior, alis ovato-oblongis subobliquis auricula longa deorsum directa et dente conjunctivo instructis. *Ovarium* lineare apice curvatum multiovulatum, stigmate stylo latiore capitato. *Legumen* oblongo-falciforme (suturis ambobus curvatis et paulo incrassatis nec carinatis), glabrum reticulato-nervosum planum obtusum v. acutiusculum (?), 2-3-spermum, 13 mm. longum, 4 mm. latum; semen. . . .

ASIA MEDIO-ORIENTALIS. Kansu et Tibet bor.-or., (? 1921), *Frank D. Learner* (typus! Herb. Kew.; pars plantae tantum superior 12.5 cm. longa florifera fructiferaque asservatur).

A satis affini *M. platycarpus* Ledeb. nostra species foliolis margine fere integris nec acute denticulatis, vexillo obovato-lateclinoideo nec oblongo-elliptico et praecipue leguminibus minoribus 13 mm. longis oblongo-falciformibus suturis ambobus curvatis nec ovato-oblongis 20-22 mm. longis rectis sutura seminifera recta differt. Affinitas nostrae speciei *M. hybridae* Trautv., cui *M. archiducis-Nicolai* affinium quam praecedenti est, quae etiam ejusdem formae foliola margine subintegro et stipulas habet et in Gallia mer.-occ. habitat, valde notabilis est. Area *M. platycarpus* Sibiria mer. (incl. Altai) et Mongolia bor. est. Sectio, ad quam *M. platycarpus*, *M. hybrida*, *M. archiducis-Nicolai* et praeterea *M. Popovii* Šir. (Turkestan) et *M. ruthenica* Ledeb. (Sibiria transbaicalica et China bor. ad Pekin [var.]) pertinent, inter sectiones gen. *Medicaginis* primigenia est et sect. *Ellipticis* Boiss. generis *Trigonellae* affinis est. De facto hae ambae sectiones inter gen. *Medicaginem* et *Trigonellam* positionem mediam occupant et alis dente cum carina conjunctis et cotyledonibus articulationis destitutis (vidi apud *M. platycarpus*!) nec articulatis (vide apud *T. Emodi* Benth!) et forma leguminis differunt. Magna disjunctio, quae aream *M. archiducis-Nicolai* (Kansu et Tibet bor. or.) ab eadem *M. hybridae* (Gallia) separat, has species ad antiquam origine tertiaria sectionem pertinere docet.—Nostra *Medicago* habitum *M. hybridae* similem, verisimiliter, habet.—Hanc speciem Celestissimo Principi Magno Nicolaj Nicolajevič dedicare mihi persolvo.

NOTA: Supra commemorata *M. Popovii* Šir. cum *Trigonella Popovii* E. Korov. identica est. Ob proximam affinitatem (alae dente cum carina conjunctae) *M. ruthenicae* Led. nec. *Trigonellae Emodi* Benth. illam ad genus *Medicaginem* refero. Ob eandem causam (corolla ejusdem typi) etiam *Trigonella pubescens* Edgew. ad genus *Medicaginem* nec *Trigonellam* pertinet (= *M. pubescens* Šir. comb. nov.).

XLII.—DECADES KEWENSES PLANTARUM NOVARUM IN
HERBARIO HORTI REGII CONSERVATARUM. DECAS CXXI.

1201. **Triumfetta longicornuta** Hutch. et M. B. Moss [Tiliaceae]; species distinctissima, affinis *T. macrocomae* K. Schum., sed sepalis longissime cornutis, aculeis fructuum multo brevioribus crassis rigidis differt.

Caulis pilis reflexis dense villosus. *Folia* digitate 5-partita, utrinque laxe pilosa, circiter 7 cm. longa, segmentis oblanceolatis, acute acuminatis, irregulariter et grosse dentatis, dentibus pilis numerosis indutis; petioli 2.5 cm. longi, villosi; stipulae mox deciduae, lineari-lanceolatae, 1 cm. longae, villosae. *Inflorescentia* cymosa, circiter 7 cm. diametro; bractee stipulaeformes sed minores; pedicelli usque ad 3 cm. longi. *Sepala* linearia, apice longissime cornuta, circiter 1.5 cm. longa, extra dense villosa. *Petala* oblanceolata, glabra, circiter 1 cm. longa. *Stamina* numerosa. *Discus* ciliatus. *Ovarium* 8-loculare. *Fructus* depresso-globosus, 2.5 cm. diametro, sublignosus, aculeis brevibus numerosissimis circiter 2 mm. longis dense pilosis instructus. *Semina* late ovato-orbicularia, mucronata, complanata, 6 mm. diametro.

KENYA COLONY: near Fort Hall, 1400 m., W. Lyne Watt 1165.

1202. **Pelargonium hemicyclicum** Hutch. et C. A. Smith [Geraniaceae]; affinis *P. Meyeri* Harv., sed foliis basi rotundatis, bracteis minoribus, pedunculorum pilis glanduloso-capitatis (haud setosis), floribus atropurpureis emaculatis differt.

Herba acaulis, usque ad 12 cm. alta. *Tuber* parvus, circiter 2 cm. diametro, squamis brunneis membranaceis obtectus. *Folia* radicalia petiolata, elliptica, apice subobtusata, basi inaequaliter rotundata, 2-4.5 cm. longa, usque ad 2.5 cm. lata, supra glabra, infra et margine pilis curvatis setuloso-pilosa, petioli usque ad 2.5 cm. longi, superne teretes, setoso-pilosi, basin planum versus stipulis adnatis setiformibus instructi. *Pedunculi* erecti, pilis brevibus glanduloso-capitatis et longioribus eglandulosis dense induti. *Umbellae* 6-10-florae; bractee subulato-lanceolatae, 3 mm. longae, pubescentes, apicem versus setosae; pedicelli usque ad 1.5 cm. longi, glanduloso-pubescentes; calcar pedicello aequilongum. *Sepala* anguste oblongo-linearia, 7 mm. longa, rubro-striata, extra glanduloso-pubescentia, margine pallidiora, apicem versus pilis longis eglandulosis ornata. *Petala* superne atropurpurea, sepalis duplo longiora, duo adaxialia erecta oblongo-lanceolata emaculata unguiculata, nervo rubro. *Stamina* filamentis rubro-tinctis.

SOUTH AFRICA.: Cape Region. Described from a living specimen at Kew, the tuber collected by Mr. Ingram.

1203. **Scutia buxifolia** Hutch. et M. B. Moss [Rhamnaceae]; species foliis parvis obovato-ellipticis vix nervosis mucronatis vel interdum etiam emarginatis a *S. indica* Brogn. facile distinguenda.

Arbor frutescens usque ad 5 m. alta ; ramuli biennes circiter 4 mm. crassi, cortice pallide brunneo obtecti, hornotini angulares, minute puberuli, aculeis brevibus leviter recurvatis armati. *Folia* obovato-elliptica, apice mucronata et interdum etiam emarginata, basi late cuneata vel rotundata, 1.5-3 cm. longa, 1.2-5 cm. lata, integra, coriacea, glabra, supra leviter nitida, vix nervosa ; petioli 3-4 mm. longi, glabri. *Flores* virides, brevissime cymosi, axillares ; pedicelli crassi, fructiferi vix 2 mm. longi. *Alabastra* late ovoidea, mucronata, minute puberula. *Calycis lobi* triangulares, acuti, 1 mm. longi. *Petala* minuta. *Ovarium* glabrum, stylo brevissimo minute bilobato coronatum. *Fructus* subglobosus, circiter 6 mm. diametro, calycis basi incrassata cinctus.

KENYA COLONY : Laikipia, 2300 m., in open forest and grassland, *H. M. Gardner* 1477 (type) ; Coles Mill, *Fries* 1013. Vernacular name *Mutandambogo*.

1204. ***Begonia lushaiensis*** *Fischer* [Begoniaceae] ; ab affini *B. modestiflora* Kurz foliis pilosioribus stipulis majoribus florum multo majorum perianthii segmentis exterioribus setosis distinguenda.

Herba erecta, caulescens. *Caulis* sparse puberulus, interdum angulatum flexuosus, saepe supra angulatus sulcatusque siccitate. *Folia* alterna, interdum summa opposita, ovata, acuminata vel caudata, basi maxime inaequalia, truncata, emarginata vel cordata, margine sinuato-dentato vel dentibus magnis denticulatis instructo, dentibus mucronulatis, nervis palmatis latere costae altero 2-4, altero 2-3, venulis inconspicuis, supra et subter ad nervos tenuiter pilosa, 5-13 cm. longa, 3-6.5 cm. lata ; petioli graciles, tenuiter pilosi vel glabrescentes, 1-8 cm. longi. *Stipulae* lanceolatae vel lineari-lanceolatae, glabrae, marginibus setosae, 0.9-1.3 cm. longae. *Cymae* axillares et terminales hae floribus racemose dispositis ; rhachis siccate angulata sulcataque, sparse crispato-pilosa, 0.5-2 cm. longa ; bracteae tenues, albescentes, oblongae, venosae, extus crispato-pilosae, 0.9-1.2 cm. longae, marginibus apiceque profunde setoso-incisis. *Flores* clari carnosi ; bracteolae hyalinae, anguste lanceolatae, glabrae, setose dentatae. *Flores* ♂ in cymis vel terminalibus vel axillaribus superioribus dispositi ; pedicelli graciles, usque ad 1 cm. longi ; perianthii segmenta 2 exteriora suborbicularia vel subcordata, apice rotundata vel subacuta, 1 cm. longa, extus medio setosa, segmenta 2 interiora lanceolata vel lineari-lanceolata, acuta, 5 mm. longa ; stamina 18-20, subter brevissime connata, inaequalia, usque ad 4 mm. longa ; antherae oblongae ; connectivum truncatum, non productum. *Flores* ♀ in cymis axillaribus infra ♂ dispositi ; pedicelli graciles, usque ad 1.5 cm. longi ; perianthii segmenta 5, extremum suborbitale, rotundatum vel subacutum, 1-1.3 cm. longum, glabrum vel ad costam leviter setosum, segmentum intimum lanceolatum, acutum, 5 mm. longum, tria alia intermedia. *Ovarium* elliptico-oblongum, 5-6 mm. longum, 3-loculare, 3-alatum, glabrum ; styli 3, infra connati minute

papilloso; stigmata lunata, pubescentia. *Capsula* alis inclusis obpyramidalis usque ad 1.5 cm. longa, 3-locularis, faciebus medianis lineatis; alae 3, 2 circiter apice 5 mm. latae, angulis exterioribus subacutis, tertia usque ad 2 cm. lata angula exteriora acuta; placentae bifidae.

INDIA. Lushai Hills, Sialsuk, 1,300 m., July, Mrs. N. E. Parry 39. Vernacular name: *Seikhupthur Ata*.

1205. **Mussaenda Parryorum** Fischer [Rubiaceae]; ab affini *M. pubescente* Ait. foliis amplioribus, nervis numerosioribus aequalius dispositis magis pubescentibus, inflorescentia maiore diffusiore floribus maioribus, corollae segmentis latioribus, bacca brunneo-pubescente distinguenda.

Frutex scandens; rami teretes, brunnei, appresse fulvo-pubescentes praesertim ad nodos, plus minusve lenticellati; ramuli novissimi subtomentosi, elenticellati. *Folia* opposita, aequalia, elliptica, acuminata, basi sensim attenuata, 7.5-17 cm. longa, 3.5-7 cm. lata; nervi primarii utrinque 7-9, supra perspicui, subtus subprominentes, regulares, reticulationes ultimae minutae; folia novissima subtomentosa, matura supra costa nervisque primariis appresse brunneo-pubescentia, nervis secundariis reticulationibusque pilis brunneis sparsis instructis, subtus costa nervisque primariis et reticulationibus novissimis villis mollibus albis indutis; petioli 0.3-1.5 cm. longi, appresse brunneo-pubescentes. *Stipulae* triangulari-lanceolatae, acuminatae, apice saepe bifidae, 4-5 mm. longae, appresse fulvo-pubescentes, caducae. *Cymae* sessiles, diffusae; rami tenuiter griseo-tomentosi; bracteae ad furcas 2, bracteolae 3, lineari-ensiformes, pubescentes, 4-8 mm. longae. *Pedicelli* breves. *Calyx* 3-4 mm. longus; tubus brevissimus; lobi 5, rarissime 6, lineari-ensiformes, brunneo-pubescentes, caduci; lobus florum nonnullorum foliaceus, albus viridi-reticulatus siccitate, ellipticus, acutus vel acuminatus, usque ad 8 cm. longus et 4 cm. latus, basi 7-nervis, in petiolum longum gracilem hirsutum constrictus, nervis venulisque tenuiter pubescens. *Corolla* 2.5 cm. longa; gemma clavata, acuta; tubus anguste cylindricus, supra vix inflatus, extus pilis viridi-griseis substrigosus, basi intus glaber, sursum villis gradatim crebrioribus planis luteis os claudentibus indutus; lobi 5, patentes, suborbiculares vel reniformes, cuspidati, 2 mm. longi, intus papillis claro-luteis (siccitate citro-brunneis) vestiti. *Stamina* 5, supra basin circiter 0.8 cm. affixa; filamenta breviter; antherae lineares, 5 mm. longae. *Ovarium* turbinatum, 3-4 mm. longum, hirsutum; stylus filiformis, supra dilatatus; stigmata 2, plana, ad corollae os attingens. *Bacca* subglobosa, 8 mm. longa, siccitate nigra, tenuiter brunneo-pubescentis.

INDIA. Assam, at N. Vanlaiphai in the Lushai Hills, 1500 m., Oct., Mrs. N. E. Parry 359 (type).

I consider a specimen in the Kew Herbarium, collected by Dr. A. Henry 8270 at Hainan in China in 1889, to be this species.

1206. **Mussaenda pentasemia** Fischer [Rubiaceae]; ab omnibus ceteris speciebus calycis segmentis cunctis 5 in appendices filiformes evolutis recedit.

Frutex vagans, 2-3 m. altus; ramuli teretes, brunnei, pilosi; ramuli novissimi obtuse triangulares, dense ochraceo-villosi. *Folia* opposita, per paria subaequalia disposita, elliptica vel late ovata, acuta vel acuminata, subundulata, basi frequenter attenuata et plus minusve decurrentia raro rotundata, 7-15 cm. longa, 3.5-8 cm. lata, supra tenuiter pilosa, subtus ad costas nervos reticulationesque appresse pilosa, ad dimidiam inferiorem densius pilosa; costa subtus prominens; nervi primarii utrinque 9-12; nervi secundarii transversi; reticulationes tenues; petioli 0.5-2 cm. longi, primum dense villosi, demum sparse pilosi. *Stipulae* late vel anguste ovatae, 5-10 mm. longae, subacutae, apice saepe bifidae, dense brunneo-villosae. *Cymae* terminales, bracteatae, 3-5 cm. longae; rhachis ramulique villosi; bracteae usque ad 1.5 cm. longae, lanceolato-caudatae vel trifidae, segmentum medium lineari-lanceolatum, lateralialia multo breviora, linearia, omnia caudata, setosa. *Flores* subsessiles. *Calycis* tubus nullus; lobi 5, albi, elliptico-lanceolati, acuminati, basi attenuati, unguicula inclusa 4-6 cm. longi, 1-1.5 cm. lati, demum elliptico-oblongi vel suborbiculares, cuspidati, usque ad 12 cm. longi (unguicula setosa 2-3.5 cm. longa inclusa) et 6.5 cm. lata, primum utrinque setosi, demum glabrescentes reticulationibus plus minusve setosis exceptis; nervi ad basim 5-9, vix curvati, supra saepe furcati; reticulationes transversae. *Corollae* tubus anguste cylindricus, in dimidiam superiorem leviter ampliatus, intus et ad os dense luteo-pilosus, 2 cm. longus, brunneo-luteus; lobi 5, patentes, rotundati, 5-6 mm. longi, extra setosi, intus glabri. *Stamina* 5; antherae lineares, inclusae, ad basim partis ampliatae corollae tubae sessiles, 5 mm. longae. *Ovarium* angustissime infundibuliforme, 4-5 mm. longum, dense villosum; stylus filiformis, apice clavatus, bifidus, glaber, corollae os attingens. *Bacca* oblonga, 9-10 mm. longa, siccitate nigra, glabrescens; folia sepalaque ante tempus fructus caduca. *Semina* minuta, suborbicularia, compressa; testa nigra, foveolata. *

INDIA. Assam, in the Lushai Hills at Nhatial, 925 m., Mrs. N. E. Parry 275. Vernacular name, *Vakep*. "A very handsome shrub."

1207. **Schizoglossum divaricatum** N. E. Br. [Asclepiadaceae]; affinis *S. cordifolio* E. May., sed floribus minoribus et coronae lorum appendicibus divaricatis differt.

Caulis 20-25 cm. altus, basi 1-2 mm. crassus, pubescens. *Folia* opposita, petiolo 2 mm. longo et lamina 15-25 mm. longa, 5-10 mm. lata, oblonga, subacuta vel obtusa, basi hastata, tenuiter scaberulo-puberula. *Umbellae* pedunculatae cum 5-8 floribus. *Pedunculi* 5-12 mm. longi, puberuli. *Pedicelli* 4-6 mm. longi, puberuli. *Sepala* 2 mm. longa,

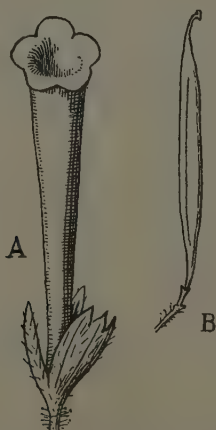
lanceolata, puberula. *Corollae* lobi 4 mm. longi, ovati, acuti, marginibus reflexis, utrinque glabri, luteo-virides. *Coronae* lobi circa 1 mm. longi subquadrati, appendicibus filiformibus duabus divaricatis fere 1 mm. longis supra staminum columnam inflexis.

TRANSVAAL. Lomati Valley, near Barberton, *Thorncroft!* sine num., in herb. Kew.

1208. ***Schizoglossum hirtiflorum*** N. E. Br. [Asclepiadaceae]; similis *S. glabrescenti* Schlechter et *S. filifolio* Schlechter, sed eis corollae lobis pilis longis statim distinguitur.

Caulis simplex, circa 45 cm. altus, gracilis, fere glaber. *Folia* opposita, erecta vel adscendentia, 17-25 mm. longa, vix 1 mm. lata, filiformi-lineararia, glabra. *Umbellae* sessiles, circa 6-florae. *Pedicelli* 4-8 mm. longi, puberuli. *Sepala* 2 mm. longa, anguste ovata, acuminata, puberula. *Corollae* lobi 3.5-4 mm. longi ovato-oblongi, apice oblique obtusi, extus glabri, intus longe pubescentes, flavo-virentes. *Coronae* lobi circa 1 mm. longi, subquadrati, apice truncati, luteo-albi, appendice filiformi 3 mm. longo erecto et simul valde revoluti instructi.

TRANSVAAL. Lomati Valley, near Barberton, *Thorncroft*, sine num., in Herb. Kew.



Trisepalum lineicapsa Fischer.

A. Flower $\times 3$. B. Capsule $\times 2$.

1209. ***Trisepalum lineicapsa*** Fischer [Gesneraceae]; a ceteris speciebus caulibus longioribus, corolla anguste tubulosa, capsula lineari calycem aliquoties excedente differt.

Herba humilis; rhizoma crassiusculum; caules complures, erecti, teretes, usque ad 12 cm. longi, dense ochreo-tomentosi, foliati. *Folia* opposita, anguste vel late elliptica, saepe altero latere gibbosa,

acuta vel subacuta, basi angustata, inaequilateralia, 3-9 cm. longa, 1.5-3.5 cm. lata, utrinque ochreo-tomentosa, dentata, summa interdum sessilia; nervi primarii utrinque 8-10, subtus distincti; petioli usque ad 2.5 cm. longi. *Cymae* axillares; rami 4, 2 uniflora, 2 iterum divisi; pedunculi 1.75-4.5 cm. longi, ramis pedicellisque gracilibus pilis patentibus apice glandulosis pubescentes; pedicelli usque ad 2 cm. longi; bracteae ad furcas late ovatae vel suborbiculares, subobtusae, 4 mm. longae, venosae, glanduloso-pubescentes, pilis multicellularibus ciliatae, citius caducae. *Calyx* 3-partitus, 3-5 mm. longus, extra glanduloso-pubescent; segmenta 2 lineari-lanceolata acuta, tertium oblongum 3-dentatum quam cetera brevius. *Corolla* tubularis, gracilis, supra vix ampliata, glabra, 1.5-1.8 cm. longa, vinosa, bilabiata; lobi 5, rotundata. *Stamina* 2. *Staminodia* 0. *Discus* 0. *Ovarium* lineare, glabrum; stylus brevis; stigma oblique subcapitatum. *Capsula* linearis, 1.5-1.8 cm. longa, apice basique attenuata, stylo persistente aristato terminata, brunnea. *Semina* minuta, ellipsoidea, basi apiceque acuta, levia.

INDIA. Assam, Lushai Hills, Aijal, 1225 m., Sept. Mrs. N. E. Parry 79.

1210. ***Commelina Jacobi*** Fischer [Commelinaceae]; ab affini *C. benghalensi* L. foliis acutis seminibus costatis distincta.

Herba ramosa, diffusa, 3-8 dm. alta; radicis fibrae dense brunneo-pilosae; caulis ramique graciles, striati, glabrescentes. *Folia* ad vaginas sessilia, ovata vel ovato-lanceolata, acuta vel acuminata, basi rotundata vel subcordata, 2.5-6 cm. longa, 0.9-3 cm. lata, glabra, ad margines crispata; nervi 7-9; vagina 1-2 cm. longa, ore minute ciliato. *Spatha* solitaria, cucullata, ovato-falcata, basi rotundata, apice acuta, 1.7-2.3 cm. longa, 0.8-1 cm. lata, extra puberula; pedunculus 1-1.7 cm. longus, sulcatus angulatusque, supra incrassatus puberulusque; pedicelli in spatha inclusi, glabri. *Sepala* 3, membranacea, 2 interiora rotundata, exterius anguste oblongum. *Petala* 3, coerulea, 2 longe unguiculata, tertium naviculare acutum. *Stamina* 3 fertilia, unum anthera magna lunata instructum. *Staminodia* 3. *Ovarium* 3-loculare; loculi laterales 2-ovulati, dorsalis 1-ovulatus. *Capsulae* quadratae, late marginatae, 5-7 mm. longae, aliae loculis binis 2-spermis, aliae loculis ternis, his ventralibus duobus 2-spermis, dorsali 1-spermo. *Semina* oblonga, leviter curvata, 3-4 mm. longa, costis transversis obtusis vel subacutis instructa, grisea.

INDIA. Agricultural College Farm, Coimbatore, 500 m., Jan. K. Cherian Jacob 15893 (type); Buddireddipatti, Salem District, December, K. Cherian Jacob 9661.

XLIII.—MARICA AND NEOMARICA. T. A. SPRAGUE.

A proposal to conserve the generic name *Marica* Ker (1803) against *Bauxia* Neck. (1790) has been submitted to the writer for preliminary examination with a view to its being eventually brought before the International Committee on general Nomenclature, provided that a *prima facie* case for conservation could be established. The history of the application of these names has accordingly been investigated.

A genus of Iridaceae, comprising eight species from tropical America and one from West Africa, was recognised by the late J. G. Baker in his 'Systema Iridacearum' under the name "*Marica* Ker" (Journ. Linn. Soc., Bot. xvi. 77, 149: 1877), and was accepted under that name by Klatt (Abh. Nat. Ges. Halle, xv. 374: 1882), Bentham (Benth. & Hook. f. Gen. Pl. iii. 689: 1883), Pax (Engl. & Prantl, Nat. Pflanzenfam. ii. Abt. 5, 147: 1888) and Dalla Torre & Harms (Gen. Siphonog. 8: 1900).

The name *Marica*,* however, was originally proposed by Schreber (Gen. Pl. i. 37: 1789) merely to replace the valid name *Cipura* Aubl. (1775), and was consequently invalid, being entirely superfluous (International Rules, Art. 51, 1°). *Marica* Schreber was adopted during the period 1803—1827, by John Gawler (afterwards John Bellenden Ker), in an extended sense, covering at least nine genera now recognised as distinct, but still including *M. paludosa* Schreb., the type-species alike of *Cipura* Aubl. and *Marica* Schreb. (Bot. Mag. tt. 646, 654, 655; Journ. Sc. & Arts, 1816, i. 174; Bot. Reg. sub t. 229, fol. 2, verso; Irid. Gen. 18). Gawler himself ascribed *Marica* to Schreber and remarked: "Why has Schreber changed Aublet's original name of *Cipura* for *Marica*?" (Bot. Mag. t. 646). A manuscript note by Bentham in his copy of the Botanical Magazine, vol. xviii, supplies the reason: "Because he did not like Aublet's name". There is therefore no justification for attributing "*Marica*" to Ker (Gawler).

The first author who used "*Marica*" in the sense of Baker was William Herbert (Bot. Mag. sub t. 3809: 1840), who entirely changed the original application of the name by excluding *Cipura* Aubl. (*Marica* Schreb.) and retaining *Marica* for a group of five or six species, typified by *Marica Northiana* (Schneev.) Ker-Gawl., and previously included *erroneously* in *Marica* Schreb. Herbert thus in reality established a new genus, and should have given it a new generic name. There was no justification either for his adoption of *Marica* for this new genus, or for his attribution of the name to Ker. The latter author had a very much wider concept of genera in Iridaceae, and when he did propose a new genus, was careful to give it a new name.

*The derivation of *Marica* is not given by Schreber, but it is probably from the nymph Marica, the fabled mother of the Latins. Wittstein's suggestion (Etym.-botan. Handwörterbuch, ed. 2, 557: 1856) that it was an abbreviated anagram of "America," because the genus is American, hardly merits serious consideration.

The question thus arises: what name should Herbert's and Baker's "*Marica*" bear under International Rules? Dalla Torre and Harms cite *Bauxia* Neck. and *Galathea* Liebm. as synonyms of it. But *Bauxia* Neck. (Elem. iii. 160: 1790) was merely a new name for *Cipura* Aubl., and should be cited as a synonym under that genus. *Galathea* Liebm. (Ind. Sem. Hort. Haun. 1855, 26: Linnaea, xxviii. 361: Walp. Ann. vi. 43) was based on *G. speciosa* Liebm., a supposed new species from Rio de Janeiro, Brazil. Klatt, however, referred it (by a *lapsus calami* as "*Galathea coerulea* Liebm.") to *Cypella caerulea* Seub. (*Marica caerulea* Ker-Gawl.), which is a typical "*Marica*" in the sense of Herbert and Baker.

Unfortunately, the name *Galathea* Liebm. is not available for this genus. It is antedated by *Galatea* Salisb. (1812), *Galatea* Cass. (1818), and *Galatea* Herb. (1820). Salisbury's *Galatea* is invalid because it was published without a generic description, and it is furthermore an absolute (i.e. nomenclatural) synonym of the conserved name *Eleutherine* Herb. (International Rules, ed. 2, 83). *Galatea* Herb. is invalid, being an absolute synonym of another conserved name, *Nerine* Herb. (l.c. 82), though it was not included among the nomina rejicienda.

Galatea Cass., however, is apparently a valid generic name. It was published with a generic description. Cassini actually called *Galatea* a subgenus, but he treated it as a genus, making binary combinations under it for all its component species. He afterwards changed the name to *Galatella* Cass. on account of *Galatea* having been previously used in Zoology. Lessing (Syn. Gen. Comp. 187: 1832) accepted *Galatea* Cass. as a genus, and Nees (Gen. & Sp. Ast. 158: 1832) and De Candolle (DC. Prodr. v. 254: 1836) also gave the group generic rank, as *Galatella* Cass. The fact that it is now treated as a section of *Aster* is immaterial as regards its nomenclatural validity.

The names *Galatea* and *Galathea* are mere orthographic variants, as is indicated by the fact that Steudel (Nomencl. ed. 2, i. 654) employed the latter spelling for *Galatea* Salisb. and *Galatea* Herb. Hence since *Galatea* Cass. (1818) is a valid name, *Galathea* Liebm. (1855) is invalid. The genus called "*Marica*" by Herbert and Baker is thus without a name. It is undesirable in the writer's opinion to conserve "*Marica* Herb.", as that was an unjustifiable transference of the name of one genus to another that had been confused with it. Hence the new name **Neomarica** is now proposed for the genus, generally, but erroneously, known nowadays as "*Marica* Ker." The synonymy of *Cipura* (*Marica*) and *Neomarica* is given below.

Cipura Aubl. Hist. Pl. Guiane Franç. i. 38 t. 13 (1775); Benth. & Hook. f. Gen. Pl. iii. 694; Engl. & Prantl, Nat. Pflanzenfam. ii. Abt. 5, 149; Dalla Torre & Harms, Gen. Siphonog. 81, n. 1280. *Marica* Schreb. Gen. Pl. i. 37 (1789), nomen abortivum; Ker-Gawl.

in Bot. Reg. sub. t. 229, fol. 2 verso (1817), excl. sp.; Ker-Gawl. Irid. Gen. 18 (1827), excl. sp.

Bauxia Neck. Elem. iii. 160 (1790), nomen abortivum.

Type-species: *Cipura paludosa* Aubl.

Neomarica *Sprague*, nom. nov.

Marica ["Ker"] Herb. in Bot. Mag. sub t. 3809 (1840); Baker in Journ. Linn. Soc., Bot. xvi. 77, 149 (1877); Benth. & Hook. f. Gen. Pl. iii. 689; Engl. & Prantl, Nat. Pflanzenfam. ii. Abt. 5, 147; Baker, Handb. Irid. 61; Dalla Torre & Harms, Gen. Siphonog. 80, n. 1268; non Schreb. (1789).

Galathea Liebm. in Ind. Sem. Hort. Haun. 1855, 26; Linnaea, xxxviii. 361; Walp. Ann. vi. 43; non *Galatea* Salisb. (1812), nec Cass. (1818), nec Herb. (1820).

Cypella Klatt in Linnaea, xxxi. 538 (1862), partim; Klatt in Mart. Fl. Bras. iii. pars 1, 518 (1871), partim; non Herb. (1826).

Type-species: *Neomarica Northiana* (Schneev.) Sprague.

The eleven species enumerated under "*Marica*" by Baker in his 'Handbook of Irideae', pp. 61-63 will now bear the following names:

1. **Neomarica caerulea**—*Marica caerulea* Ker-Gawl. in Bot. Reg. t. 713 (1823). *Cypella caerulea* Seub. ex Hook. f. in Bot. Mag. t. 5612 (1866). *Marica Sabini* Lindl. in Trans. Hort. Soc. vi. 75, t. 1 (1826). *Galathea speciosa* Liebm. in Ind. Sem. Hort. Bot. Haun. 1855, 26; Linnaea xxxviii. 361; Walp. Ann. vi. 43; teste Klatt in Mart. Fl. Bras. iii. pars 1, 519 (sub nomine "*Galathea coerulea* Liebm." cit.).
2. **N. glauca**—*Cypella glauca* Seub. ex Klatt in Linnaea, xxxi. 542 (1862). *Marica glauca* Baker in Journ. Linn. Soc., Bot. xvi. 149 (1877).
3. **N. Warmingii**—*Marica Warmingii* Klatt in Abh. Naturf. Ges. Halle, xii. 375 (1882).
4. **N. Northiana**—*Moraea Northiana* Schneev. Ic. Pl. Rar. tt. 41, 42 (1793); Andr. Bot. Rep. t. 255 (1802). *Marica Northiana* Ker-Gawl. in Bot. Mag. t. 654 (1803). *Iris Northiana* Pers. Syn. i. 52 (1805). *Cypella Northiana* Klatt in Mart. Fl. Bras., iii. pars 1, 520 (1871). *Ferraria elegans* Salisb. Prodr. 42 (1796). *Marica coelestis* Lemaire, Hort. Univ. iv. 138 (1843), non Lehm. var. **undulata**—*Cipura Northiana* var. *coelestis* Morr. in Ann. de Gand. v. 209, t. 258 (1849); non *Marica coelestis* Lemaire.
5. **N. gracilis**—*Marica gracilis* Herb. in Bot. Mag. t. 3713 (1839). *Cypella gracilis* Klatt in Mart. Fl. Bras. iii. pars 1, 521 (1871).
6. **N. brachypus**—*Cypella brachypus* Baker in Gard. Chron. 1876, v. 138. *Marica brachypus* Baker in Journ. Linn. Soc., Bot. xvi. 150 (1877); et in Bot. Mag. t. 6380.
7. **N. longifolia**—*Marica longifolia* Link et Otto, Ic. Pl. Sel. 123, t. 58 (1828).

8. **N. lutea**—*Marica humilis* var. *lutea* Herb. in Bot. Mag. t. 3809 (1840). *Marica lutea* Herb. l.c.
9. **N. vittata**—*Marica humilis* Lodd. Bot. Cab. 1081 (1825), non Roem. et Schult. (1817). *Marica humilis* var. *princeps* Herb. in Bot. Mag. sub t. 3809 (1840). *Cypella humilis* Klatt in Linnaea, xxxi. 540 (1862). *Marica Northiana* var. *splendens* Cogn. in Ill. Hort. xlii. 249, t.40 (1895).
In order to avoid confusion with *Marica humilis* Roem. et Schult. (*Cipura humilis* H.B.K.), a new specific epithet has been chosen. *N. vittata* may possibly be a variety of *N. Northiana* (Schneev.).
10. **N. bulbosa**—*Marica bulbosa* Klatt in Abh. Naturf. Ges. Halle, xii. 374 (1882). *Cypella lutea* Klatt in Mart. Fl. Bras. iii. pars 1, 522 (1871), non *Marica lutea* Herb.
11. **N. Martii**—*Marica Martii* Baker, Handb. Irid. 63 (1892). *Cypella flava* Mart. ex Baker, l.c., pro syn.

Three new species of "*Marica*" described since Baker's Handbook will bear the following names under *Neomarica* :

N. occidentalis—*Marica occidentalis* Baker in Gard. Chron. 1892 xii. 150.

N. imbricata—*Marica imbricata* Hand.-Mazz. in Denkschr. Akad. Wiss. Wien, Math.-Nat., lxxix. 215, t.20 (1908).

N. candida—*Marica candida* Hassler in Physis, vi. 359 (1923).

Species dubiae vel minus cognitae.

Marica acorifolia Mart. et Gal. in Bull. Acad. Brux. x. no. 2, 111 (1834).—Mexico (Oaxaca).

Marica bicolor Regel, Cat. Pl. Hort. Aksakov. 90, nomen.—Hab. ?

Marica coelestis Lehm. Ind. Sem. Hort. Hamb. 1826, 17 ; et in Linnaea, v. 379 (1830).—Evidently not a *Neomarica*. The bulb, plicate leaves, and petaloid stigmas suggest *Cipura*.

Marica Helenae Worsley in Journ. Roy. Hort. Soc. xxviii. 530 (1904).—Possibly a variety of *Neomarica caerulea* (Ker-Gawl.).

Marica splendens Regel, Cat. Pl. Hort. Aksakov. 90, nomen.—Hab. ?

Marica variegata Mart. et Gal. in Bull. Acad. Brux. x. no. 2, 112 (1843).—Mexico (Vera Cruz). Said to be near *Neomarica Northiana* (Schneev.).

Marica zebrina Hoffmgg. Verz. Pflanzenkult. 76 (1824), nomen.—Hab. ?

XLIV.—THE FLORA OF MADRAS : VI.

The eighth part (pp. 1347-1532) *Ulmaceae* to *Xyridaceae* has now been published and Mr. Fischer has drafted the following notes in continuation of those previously published.*

*See K.B. 1916, p. 57 ; 1918, p. 222 ; 1920, p. 49 ; 1921, p. 312 ; 1924, p. 235.

FICUS.

Page 1353. *Ficus altissima* Bl. ; F.B.I. v. 504 includes the Deccan Peninsula in the habitat of this species and Beddome, For. Manual ccxxiii, gives "Malabar." I have seen no specimens from South India nor is the locality included in King's monograph (Ann. Calc. 30).

Ficus Trimeni King. The F.B.I. v. 509 gives Deccan Peninsula as the habitat, probably following King, Ann. Calc. 46, who states "Canara, Dhawar and Bellary Districts, Law." But the single specimen of Law in the Kew Herbarium bearing this name is, in my opinion, a form of *F. retusa* Linn. and does not at all agree with the description of *F. Trimeni*, which is a Ceylon tree. Bourdillon, For. Trees of Travancore, p. 361, writes "said to occur in the forests of Travancore, though I do not know it." I have seen no specimens from S. India and I have therefore, omitted it.

F. guttata Kurz. Though I have examined a considerable number of receptacles I have failed, as did Sir G. King, to find any male flowers.

GIRARDINIA.

Page 1374. The typical *Girardinia heterophylla* Decne. does not extend to S. India. The two species *G. palmata* Gaud. and *G. zeylanica* Decne. treated as varieties in F.B.I. v. 551 are sufficiently distinct to rank as good species.

ELATOSTEMMA.

Page 1372. *E. lineolatum* Wight. I agree with T. Cooke, Fl. Bomb. ii. 635 that there are no good characters for distinguishing the varieties *major* and *integrifolia*, F.B.I. v. 565.

E. cuneatum Wight. I can find no authority for Weddell's statement in Monogr. Urt. 331 for the occurrence of this species in the Nilgiris.

POUZOLZIA.

Page 1381. All the south Indian species are exceedingly variable. It is not difficult to separate extreme forms but with a large series of specimens one finds an almost imperceptible gradation. Consequently with 240 sheets of the South Indian Pouzolzia's before me I am unable to agree with some of the distinctions laid down by Weddell in Monogr. Urtic., or even in the F.B.I. I have considered it necessary to reduce *P. tuberosa* Wight and *P. vesicaria* Wight to *P. indica* Gaud. On the other hand I consider Hooker's var. *cymosa* of *P. auriculata* Wight sufficiently distinct to make it a good species.

SALIX.

Page 1390. With a large range of specimens I am unable to maintain *S. tetrasperma* Roxb. and *S. ichnostachya* Lindl. apart,

even as varieties. None of the distinguishing characters I find to be constant ; they merge insensibly from one extreme to the other.

BURMANNIA.

Page 1399. Hooker in Fl. Brit. India. v. 665, ventures the opinion that *B. pusilla* Thw. is a small state of *B. coelestis* D. Don, and states that he can distinguish *B. candida* Griff. " from small forms of *B. coelestis* or *pusilla* only by the absence of radical leaves, possibly the effect of growing in water." I entirely concur.

B. Wallichii Hook. f., F.B.I. v. 666 is a species from Mergui. I do not consider that any of the South Indian specimens so determined are this species but that they are variations of *B. coelestis*. *B. Wallichii* has, therefore, been excluded.

MICROSTYLIS.

Page 1407. As pointed out by T. Cooke, Fl. Bomb. ii. 678, Lindley's name *M. versicolor* antedates Wight's name *M. Rheedei* (Ic. t. 902) by over 13 years, consequently *M. versicolor*, Wight Ic. t. 901 is an invalid name and the plant must take the name *densiflora* after A. Richard, who called it *Liparis densiflora* (Ann. Sc. Nat. sér. 2, xv. 18).

DENDROBIUM.

Page 1612. *D. Gamblei* King and Pantl. In Ann. Calc. ix. 2 99, Duthie states : " It has been found also on the Nilgiris by Mr. Proudlock." This statement is based, I presume, on a sheet, so determined, collected by Mr. Proudlock at Ootacamund in 1896 and now in the Calcutta Herbarium. I have examined this sheet which has only three dilapidated flowers and half a dozen young leaves, the remainder consisting of stems from which the flowers have fallen. It is certainly not *D. Gamblei* and is probably *D. macrostachyum* Lindl. As this is the sole authority for the appearance of *D. Gamblei* in S. India (quoted by Kränzlin in Pflanzenreich iv. 50. 11. B, 21, 60) I have excluded it.

D. Pierardi Roxb. is identical with Roxburgh's *Limodorum aphyllum*, Cor. Pl. t. 41 (1795). *Dendrobium aphyllum* Roxb., doubtfully connected by Lindley (Gen. et Sp. Orch. 1830-40) with *D. amoenum* Wall. is invalid as it was not accompanied by a description. In the F.B.I. v. 739 *D. cucullatum* R. Br. is suggested as the earliest name, but it dates only from 1821. It follows that the earliest valid name is *aphyllum*.

EULOPHIA.

Page 1433. *E. virens* R. Br. The first name of this species is *Serapias epidendreae* Retz. the trivial portion of which Willdenow (Sp. Pl.) changed unwarrantably to *Bletia epidendroides*. Schlechter (Die Orchideen, 346) has made the new combination *Eulophia epidendroides*, erroneously quoting the original name as *Serapias epidendroides*. The correct name is *Eulophia epidendreae*.

E. Cullenii Fischer. In F.B.I. vi. 7, *Cyrtopera Cullenii* Wight Ic. t. 1754 is cited under *Eulophia flava* Hook. f. which latter species is accordingly shown as occurring in Travancore. I am unable to agree to this identification and I have, therefore, had to create a new combination as above and to exclude *E. flava*.

AERIDES.

Page 1441. *A. ringens* Fischer. This species is named *A. radicosum* A. Rich. in the F.B.I. vi. 46, but its earliest names are *Saccolabium ringens* and *S. Wightianum* of Lindley in Wall. Cat. 7313 and 7303 and Gen. and Sp. Orch. 221. Both descriptions are on the same page but the former comes first and moreover the latter has also been used for another plant (*Vanda parviflora*). The correct combination, therefore, is as above.

SACCOLABIUM.

Page 1445. *S. nilagiricum* Hook. f. The first name of this species was *Vanda pulchella* Wight. Ic. t. 1671, the correct name, therefore is *Saccolabium pulchellum*.

HABENARIA.

Page 1461. *H. subpubens* A. Rich. After a careful examination of a number of sheets I am unable to keep this species separate from *H. Heyneana* Lindl. All the features cited as distinctive by the several authors who keep them apart vary considerably and in some cases the characters mentioned do not agree with the descriptions and figures. I could find no one constant distinguishing feature and must combine the two under the older name of Lindley.

H. macrostachya Lindl. In the F.B.I. vi. 134, this species is shown as occurring in "Travancore on the Anamallay hills, Beddome (in Herb. Calcutt.), Ceylon, Macrae."

I have seen Beddome's specimen and find that it does not agree with the type specimen (Macrae's) in the Lindley collection. It differs in the leaves, the bracts which are shorter than the ovary, the acute, not filiform, tips of the sepals, the side lobes of the lip being much longer than the mid-lobe, the fantastic convolutions of the filiform tips of the petals, the much stouter and more curved spur which is rather abruptly enlarged at the apex.

I have not seen the specimen on which Sedgwick based his *H. multicaudata* (Rec. Bot. Surv. Ind. vi. 352) but his description leaves me in no doubt that Beddome's plant is this species. I have seen two other sheets. One collected in the Nilgiri hills in 1860, without collector's name but probably also of Beddome's collecting, and one collected by myself (No. 4475) at Karianshola in the Anaimallais in the Coimbatore District in August 1920 at 2200 feet. Beddome's specimen in Herb. Calc. is No. 38 of 1859 from "Anamallas." It was probably not collected in Travancore as assumed by Hooker, but in the Coimbatore Anaimallais where Beddome worked as a Forest Officer for several years. The spot where I found the plant (once only) is within a mile of the former site of Beddome's residence.

In life the flower has a striking resemblance to an ichneumon fly, a similarity which it shares apparently with a tropical African species, *H. ichneumonia* Lindl., and with *H. ichneumoniformis* Ridl. from Madagascar.

H. decipiens Wight is intermediate in almost every character between *H. longicornu* Lindl. and *H. longicalcarata* A. Rich. It is found, as far as I have been able to ascertain from the scrutiny of a large number of specimens, only in the localities where *both* the other two occur. I suspect that it is a natural hybrid between them.

H. fusifera Hook. f., F.B.I. vi. 147. I have examined the type (and only) specimen, which is in the Herb. Calc., and I am of opinion that it is identical with *H. marginata* Coleb.

ZINGIBERACEAE.

Page 1478. Most of the genera are exceedingly difficult to deal with from dried material, especially in the genera *Curcuma*, *Amomum* and *Zingiber*, partly because the floral parts are extremely delicate and almost impossible to expand again once they have dried and partly because the shape and internal colour of the roots, parts not usually collected, afford good characters. These genera require careful study in the field, and herbarium specimens should be completed with roots and with detailed notes on the critical features made from fresh plants. With most of the species I have had to accept the descriptions and verdicts of other authors, doing the best I could with the dry material at my disposal.

LILIACEAE.

Page 1514. *Asparagus capitatus* Baker. The F.B.I. vi. 315 cites "Nilgiri Hills; Wight" as part of the habitat of this species. I do not know on what specimen this locality is based as I cannot find any specimen among Wight's plants in the Herb. Kew. to support it. Moreover, Baker, who saw Wight's specimens, has not given this locality. As I have seen no specimen from S. India I have excluded this species.

XLV.—THE CORRECT SPELLING OF CERTAIN GENERIC NAMES : II.* T. A. SPRAGUE.

Enquiries regarding the correct spelling, according to International Rules, of the generic names *Ailanthus*, *Amaranthus* and *Borago* have been received for investigation by the writer since the appearance of the first article of this series (on *Mesembryanthemum*) ; and as these cases and that of *Prunella* (*Brunella*) are typical of many others, it seems desirable to publish the results. The case of *Euonymus* (*Evonymus*) is also discussed, as it raises the question of the precise interpretation of Art. 38, regarding which a difference of opinion has been found to exist.

*Continued from *K.B.* 1928, page 115.

2. *Ailanthus* or *Ailantus*.

The generic name of the ' Tree of Heaven ' has been spelt in four different ways: *Ailanthus*, *Ailantus*, *Aylanthus*, *Aylantus*. It was originally published in the form *Ailanthus* by Desfontaines in Mém. Acad. Sc. Par. 1786, 265, t. 8 (1788). The type-species of *Ailanthus* was *A. glandulosa* Desf. (*A. altissima* Swingle), but the generic name was derived indirectly from the native name, *Aylanto*, under which another species (*A. integrifolia* Lam.) was known in Amboina, Dutch East Indies. " Il [*Ailanthus glandulosa*] est originaire de la Chine, et l'arbor coeli de Rumphius, Hort. Amboin., que les Indiens appellent ailanthe, dans leur langue, est une espèce qui nous paroît appartenir au genre que nous venons de décrire, c'est pourquoi nous avons conservé cette dénomination pour nom générique " (Desf. l.c. 271). This statement by Desfontaines is not strictly accurate: the vernacular name actually cited by Rumphius for his arbor coeli was *Aylanto* (not *ailanthe*), and from this a " popular " French name *ailanthe** was coined by Desfontaines, who made the latter the basis of his generic name *Ailanthus*. At that time the practice of coining a French name for every plant which did not possess one was very general, as may be seen from almost any page of Lamarck's Encyclopédie.

In 1789 Jussieu (Gen. 373) altered the spelling to *Aylantus*, so as to make it correspond more closely with the Amboina name *Aylanto*. In 1799 Ventenat (Tabl. iii. 450) modified it to *Aylanthus*, and in 1825 De Candolle (Prodr. ii. 88) proposed a fourth form, *Ailantus*. During the period 1804-1815 Desfontaines (Table École Bot. ed. 1, 199; Hist. Arbres, ii. 341; Table École Bot. ed. 2, 228) had accepted Jussieu's modification of the generic name, i.e. *Aylantus*, but in 1829 he finally returned to his own original spelling *Ailanthus* (Cat. Pl. Hort. Par. ed. 3, 330).

The native name of *Ailanthus integrifolia* (*A. moluccana*) current in the Moluccas was given as *Aijlanto* by Filet (Plantk. Woordenb. Ned.-Ind. ed. 2, 4, no. 57: 1888), while De Clercq (Nieuw Plantk. Woordenb. Ned. Ind. 8: 1909) cited the three variants, *Ai lanit*, *Ail laniol*, and *Ail lanitol*, as being used respectively on the south coast of Ceram, and in the neighbouring islands of Nusa Laut and Saparua.

Under Art. 24 of the International Rules, Desfontaines was at liberty to form his new generic name in any way he pleased, while Art. 50 states that no one is authorised to change or modify a name because it is badly chosen or disagreeable. Hence the later variants *Aylantus* Juss., *Aylanthus* Vent. and *Ailantus* DC. are invalid, and the genus stands under its original name, *Ailanthus* Desf. This contains no typographic or orthographic error such as might be corrected under the provisions of Art. 57. That Article appears to have been widely misinterpreted, owing to the absence of examples of the kinds of errors which may be corrected: when read in

**vide* Desf. l.c. 265, t. 8 (l'ailanthe glanduleux), 268 footnote, 271 (ailanthe).

conjunction with Articles 24 and 50, however, there should be no doubt as to its meaning. In this connection Briquet's remarks concerning the generic names *Alchemilla*, *Dorycnopsis* (Prodr. Fl. Corse, ii. 199, 320), *Valantia* and *Kentranthus* (Burnat, Fl. Alp. Marit. v. 171, 186) may be consulted.

3. *Amaranthus* or *Amarantus*.

The Amaranth of ancient Greece, ὁ ἀμάραντος * (Diosc. lib. iv. cap. 57) was so-called because the flower was everlasting (adj. ἀμάραντος, unfading). The Latin form of the name was amārāntus (Pliny, lib. xxi. cap. 8, sect. 23; cap. 11, sect. 39), the admittedly corrupt spelling amaranthus being the result of false analogy and etymology. The real question at issue, however, is not the correct spelling of the classical Latin word amaranthus, but that of the botanical generic name *Amaranthus* L. (1753) according to the International Rules of Nomenclature.

The form *Amarantus* was used by Ruellius, De Nat. Stirp. 31, l. 14 (1537), Fuchs, Hist. 98 (1542), Gesner, Cat. 5 (1542), Mattioli, Comm. 464 (1554), Cordus, Annot. Diosc. 168 (1561), and Mattioli, Comm. 549 (1563). The spelling *Amaranthus*, on the other hand, was adopted by Dorstenius, Botanicon, 126 (1540), Turner, New Herball, fol. C1 verso (1551), Tragus, Hist. i. 330 (1552), Dodonaeus, Hist. i. 108, 206 (1553), Pena et Lobel, Stirp. Advers. 95 (1571), Mattioli Epit. ed. Calceol. 791 (1586), Dalechamps, Hist. i. 870 (1587), Lobel, Ic. 250-252 (1591) and Plukenet, Alm. 26 (1596), so that it was at least as common as *Amarantus* in the sixteenth century.

In the seventeenth century the spelling *Amaranthus* was employed by most authors, including C. Bauhin, Pinax, 120 (1623), Parkinson, Parad. 370 (1629), and Theatr. 753 (1640), J. Bauhin, Hist. ii. 968 (1651), Morison, Hist. ii. 601 (1680), Mentzel, Ind. Nom. Pl. Univ. 18 (1682), and Tournefort, Élem. Bot. i. 201 (1694). Tournefort gave the following derivation. "*Amaranthus* vient des mots grecs ἄνθος, fleur, et μαράνω, se flétrir, et de la particule privative α, comme qui diroît une fleur qui ne se flétrit pas". *Amarantus* was adopted, however, by Besler, Hort. Eystett., Class. Autumn., Ord. 2, fol. 6-8, (1613),† and Ray, Hist. i. 201 (1686). The latter author pointed out that the form *Amaranthus* was corrupt: "*Amarantus* male cum 'th' scribitur *Amaranthus*. Nam Graece est ἀμάραντος, quod et florem notat, et adjective significat immarcescibilis, ab α privativa et μαράνω marceo."

Also in the first half of the eighteenth century *Amarantus* was less common than *Amaranthus*. The spelling *Amarantus* was chosen by Boerhaave, Ind. Alt. Pl. Hort. Lugd.-Bat. ii. 97 (1720), and Hist. Pl. Lugd.-Bat. 563 (1727), although in the latter work he accepted Tournefort's derivation from ἄνθος and μαράνω. Burmann, Thes.

*Paulus Aegineta, lib. viii. sect. 3, has το ἀμάραντον, and Galen (Opera, ed. Kühn, xi. 824) has το ἀμάρανθον in one instance. Joannes Agricola, Medicinæ Herbariæ libri duo, 39 (1539) has *Amaranthos* Galeni.

† *Amaranthus* occurs, however, on one of the plates.

Zeylan. 16 (1737) also used *Amarantus*. On the other hand the form *Amaranthus* was accepted by a majority of authors, including Barrelier, Pl. Gall. Hisp. et Ital. 45 (1714), Martyn, Hist. Pl. Rar. 6, 7 (1728), Royen, Fl. Leyd. Prodr. 419 (1740), Haller, Enum. Stirp. Helv. 176 (1742), Dalibard, Fl. Paris. Prodr. 290 (1749), and Hill, Gen. Nat. Hist. 605 (1751). Linné—except in Syst. Nat. ed. 10, 1268 (1759), where the spelling *Amarantus* occurs—consistently spelt the generic name as *Amaranthus*: vide Gen. Pl. ed. 1, 286 (1737), Hort. Cliff. 443 (1737), Gen. Pl. ed. 2, 454 (1742), Fl. Zeylan. 160 (1747), Phil. Bot. 45, n. 68, 69 sub voce “Dehiscentia,” 140, 177 (1751), Sp. Pl. ed. 1, 989 (1753), Gen. Pl. ed. 5, 427 (1754), Sp. Pl. ed. 2, 1403 (1763). In his ‘Philosophia Botanica’ Linné accepted Tournefort’s etymology of *Amaranthus*, from μαράινω and ἄνθος. The form *Amarantus* occurs only once in the text of that work, namely, in his list of names of plants used by the ancient Greeks and Romans (Vocabula plantarum, veteribus usitata), as “*Amarantus*. αμαραντος D [ioscorides]” (Phil. Bot. 188). There is thus no doubt that Linné knew both forms, and *deliberately* rejected the classical spelling *Amarantus* (derived from ἀμαράντος) in favour of the later spelling *Amaranthus* (derived from α privative, μαράινω and ἄνθος).^{*} Accordingly, under International Rules, Art. 24, 50 and 57, *Amaranthus* must stand. This was the conclusion reached by Briquet (Prodr. Fl. Corse, i. 470: 1910), but certain authors who attach greater relative importance to correct classical spelling have nevertheless retained the form *Amarantus*, hence the necessity for the present investigation.

4. Borago or Borrago.

The correct form of this generic name has been the subject of dispute for at least seven centuries. The spelling *Borago* was adopted in the second edition of Schinz and Keller’s ‘Flora der Schweiz’ (1905) in place of *Borrago*, which had been used in the first edition; and in 1907 Schinz and Thellung (Bull. Herb. Boiss. sér. 2, vii. 338) stated that this change had been made in accordance with Art. 57 of the International Rules. *Borrago*, however, continued to be used by some authors, including Dalla Torre and Sarnthein, Fl. Tirol (1912), Fritsch, Exkursionsfl. Österr. ed. 3 (1922), Prodan, Fl. Romania (1923), and Jávorka, Magyar Fl. (1925); and a difference of opinion as to the correct spelling was also manifested in Brooklyn Botanic Garden, International Seed Exchange, Communication no. 7, p. 28 (1926). Hence it seems desirable to consider the case in some detail.

The etymology of the name *Borago* or *Borrago* is uncertain. Apparently most authors nowadays, however, accept the derivation from late Latin “burra” (Ital. Span. Port. “borra”), coarse wool

^{*}As pointed out by the late Prof. Thellung (Aschers. & Graebn. Syn. Mitteleur. Fl. v. Abt. 1, 225, adnot. 1: 1914), the spelling should have been *Amarananthus*, if ἄνθος entered into the composition of the name.

or hair (vide Diez, Etym. Wörterb. Roman. Sprach. ed. 3, i. 77 : 1869 ; New English Dict. i. 999 ; 1888 ; Encycl. Britann. ed. 11, iv. 242 : 1910) in supposed allusion to the rough hair characteristic of the genus and of many other *Boraginaceae*. It has also been suggested that the name was a variant either of *Bovago* (from "bos", an ox, *Buglossum*, i.e. ox-tongue, being an alternative name), or of *Corago* (from "cor", the heart, and "agere", to stimulate) the latter name supposedly alluding to the reputed tonic action of the plant on the heart.

In the Latin editions of 'Ortus Sanitatis' published in 1490, 1491, 1511 and 1517, cap. lxxviii. the name *Borago* is attributed to Ysidorus lib. ethimo. [Isidorus, Etymologiarum libri xx]. Isidorus, however, apparently does not mention *Borago*, though he includes *Buglossos* (Isidorus, Etymol. ed. Lindemannus, 551, lib. xvii. cap. ix. no. 49 : 1833).

The name *Corrago* occurs in the Bury St. Edmunds codex (written about A.D. 1100) of the Herbal of Apuleius Barbarus, where it was given as a synonym of No. viii, oxes-tunge, along with *Buglossa*, *Lingua bubula*, *Bovis lingua* etc. Gunther (Herbal of Apuleius Barbarus, 101 : 1925) identified the figure as *Lycopsis arvensis* L., but to the writer the reproduction is suggestive rather of *Echium vulgare* L., which was figured as *Buglossa sylvestris*, Wild Ochsenzung, by Brunfels, Herb. i. 111 (1530).

Platearius ('De simplicibus medicinis', alias 'Circa instans'), a twelfth century author, is quoted by Leoniceus (De Plinii erroribus, 241 : 1529) as follows : "*Buglossum Romani linguam bubulam*, Lucani *corago*, nascitur locis cultis et sabulosis". This was evidently taken from Apuleius Barbarus. The Bodley MS. 130, however, attributes the name "*Corrago*" to the "*Daci*", whereas Platearius attributes "*Corago*" to the "*Lucani*", as in Hummelberg's edition of Apuleius, De Medic. Herb. 147 (1537).

Albertus Magnus (A.D. 1193-1280), who gave a wonderfully good description of the flower of borage (De Veget. lib. vi. sect. 291) used the spelling *Borago* (lib. iv. sect. 116 ; lib. vi. sect. 215, 291, 434), but the forms *borrago*, *pirago*, *parago*, *perago* etc. also occur in some of the codices (Meyer et Jessen, Alberti Magni, De Vegetabilibus, 447, adnot ψ : 1867).

Simon Genuensis or Januensis (end of the thirteenth century) is quoted by Leoniceus (De Plinii erroribus, 239 : 1529) as follows : "*Borago herba nota cibo apta, et medicinae, et flos, et folia, et semen, buglossa dicitur species ejus sylvestris. Non reperio aliquem autorem autenticum, facientem capitulum de utraque : si scribit de una, non scribit de alia.*" This quotation is apparently from the 'Clavis sanationis', a work which I have not seen.

Matthaeus Sylvaticus (fourteenth century, d. 1342) Liber Pandectarum, cap. 107, has the spelling *Borrago* (but *Borago* occurs in the index). Immediately after his account of *Borrago* is the following definition : "*Borra est quedam albedo cum aliquali pilositate : ut*

apparet in foliis calamenti et iusquiami et aliis". There is, however, nothing to indicate whether he recognised any etymological connection between *Borrigo* and *Borra*, or not. Matthaeus Sylvaticus also gave an account of Bugloss under the heading *Lingua bovis* (cap. 512).

The German edition of the *Ortus Sanitatis* published at Mainz in 1485 has the spelling *Borago*, with the German equivalents porrich or borrich: "*Borago* latine et grece. In dem buoch genant circa instans stat geschriben das borrich sy heysz und feucht an dem anfang des ersten grats. Das krut ist uns woel bekant; und hait breyt bletter die synt ruch; und so sie grune synt so bruchet man sie in der artzny und nit dorre. Der same ist fast guot genutzet und weret zwey iare."

Nicolaus Leoniceus, *De Plinii erroribus*, 239-242 (Basileae, 1529*), has a long account of *Buglossa* and *Borago*, including the quotations from Platearius and Simon Genuensis given above. He consistently uses the spelling *Borago*, and has the following comment on the extract from Platearius: "Forte autem pro *borago* verbo, *corago* vitiose scribitur, aut nomen *coraginis* una litera variata est in *boraginem* versum". He therefore kept an open mind as to the derivation of the name *borago* or *corago*.

Hermolaus Barbarus, *Corollarii*, 84 (1516) writes of *Cirsion*: "nec dissimilis huic videtur, quam *Porriginem* sive *Borriginem* olitores nostri vocant".

The following extract from Marcellus Vergilius, Pedacii Dioscoridae Anazarbei de materia medica libri sex (Florentiae, 1518) is quoted by Brunfels (Herb. i. 114: "credamus, quam veteres *Buglosson* dixerunt, nostrae aetatis *Boraginem* esse". Brunfels also quotes "*Buglosson* quam *Boraginem* vocant" from Johannes Manardus, *Epistolae medicinales* (Ferrariae, 1521).†

Brunfels himself (Herb. i. 114: 1530) adopted the spelling *Borago*,‡ and so did Tragus (New Kreütter Buoch, fol. lxxv, verso: 1539; Hist. i. 237: 1552), but the latter gave *Porrigo* and *Corago* as alternative spellings (l.c. 238): "ea planta, quae Germanis Burres, Latinis *Borago*, *Porrigo*, seu ut Leoniceno placuit *Corago* dicitur".

Fuchs adopted the form *Borago* in his *Plant. Pharmac. Nomencl.* (1541), but the next year he accepted the name *Buglossum* for *Borago*, and cited the form *Borrigo* as being used in the druggists' shops and by the herbalists: "officinis et herbariis *Borrigo*, Germanis *Burretsch* dicitur." *Borrigo* was used also by Valerius Cordus (Annot. fol. 71, verso: 1561), and Gesner (*Hort. Germ.* fol. 250, verso, in eodem tomo).

*First published at Ferrara in 1492.

†A second edition was published at Venice in 1557. In this we have "vera *Buglossus*, ea s. quae vulgo dicitur *Borago*" (561, l. 33) and "veramque *Buglossum* quam *Boraginam* [vocant]."

‡Brunfels, however, had the spelling *Borrigo* in his *Onomastikon Medicinae*, sub voce *Buglossos* (1534).

Among other pre-Linnean authors who chose the spelling *Borrago* were the following : Champerius, *Rosa Gallica*, fol. lxxv, verso (1518) ; and Hort. Gall. 45 (1533) ; Stephanus, *De Latinis et Graecis Nominibus Arborum*, 28 (1548), et op. cit. 18 (1554) ; Amatus Lusitanus, *In Diosc. Mat. Med. Comment.* 456 (1554) ; Mattioli, *Comm. Diosc.* 513 (1554) ; Pinaeus, *Hist. Pl.* 574 (1561) ; Mattioli, *Compend. ed Calceol.* 826 (1571) ; Pena et Lobel, *Nov. Stirp. Advers.* 246 (1571) ; Lobel, *Obs.* 309-311 (1576) ; Lobel, *Ic.* 575 (1581) ; Mattioli, *Epit. ed. Calceol.* 914 (1586) ; Dalechamps, *Hist.* 578, 581 (1587) ; Tabernaemontanus, *Eicones*, 417, 418 (1590) ; Tabernaemontanus, *Neuw Kreuterbuch*, ii. 126 (1591) ; Porta, *Villae Libri*, 670 (1592) ; C. Bauhin, *Phytopinax*, 493 (1596) ; Zaluzanius, *Meth. Herb. cap. x. fol. Y 2* (1604) ; Besler, *Hort. Eystett.*, *Class. Vernal.*, ord. 6, fol. 14, *Class. Hybern.* fol. 4 (1613) ; C. Bauhin, *Pinax* 255 (1623) ; Parkinson, *Theatr. Bot.* 765 (1640) ; J. Bauhin, *Hist.* iii. 574 (1651) ; Ambrosini, *Phytolog.* 107 (1666) ; Pancovius, *Herb. ed. Zorn* 71 (1673) ; Ammannus, *Char. Pl. Nat.* 75, 199 (1685) ; Hermann, *Hort. Lugd.-Bat.* 93 (1687) ; Tournefort, *Elem. Bot. i.* 109 (1694) ; Weinmann, *Phytanth. Iconogr. i.* 175 (1737) ; Zwinger, *Theatr. Bot.* 1012 (1744).

On the other hand the form *Borago* was chosen by the following : Petrus de Crescentiis, *Rur. Comm. lib. vi. fol. 113* (1471) ; Herbarius (Maguntiae, 1484) ; Ortus Sanitatis, *De Herbis*, cap. lxxviii. (1491) ; Arnoldus de Villa Nova, *Tract. Virt. Herb.* fol. xxiii. (1499) ; Aemilius Macer, *De Virtutibus Herbarum*, fol. i. l, recto (Venetiis, 1506) ; Humelbergius, *Lib. Apulei Platonici*, 148 (1537) ; Ruellius, *De Nat. Stirp.* 635 (1537) ; Stephanus, *De Re Hortensi Libellus*, 68 (Lugduni, 1539), 75 (Parisiis, 1539) ; Dorstenius, *Botanicon*, fol. 49, C (1540) ; Dioscorides, *Medic. Mat.*, interpr. Ruellius, ed. Ryff, 348 (1543) ; Duchesne, *In Ruellium de Stirp. Epit.* 17 (1544) ; Petrus de Crescentiis, *Agric. Pl. Anim.* 197 (1548) ; Turner, *New Herball*, fol. G 4 (1551) ; Dodoens, *Cruydeboek*, p. xvi (1554) ; Mesue, *Medic. Pract.*, annot. Manardus et Sylvius, *De Consol. Medic.*, fol. 122, recto, col. 2, A (Venetiis, 1558) ; Mesue, *Opera*, fol. 120, verso, col. 2, F (1562) ; Lonicerus, *Kreuterbuch*, 176 (1578) ; Dodonaeus, *Stirp. Hist. Pempt.* 615 (1583) ; Gerarde, *Herball*, 653 (1597) ; Mesue, *Opera*, fol. 123, verso, col. 2, F (1602) ; Pilletearius, *Plantarum Synonymia*, 66 (1610) ; Spigelius, *Isagoges Libri duo*, 230 (1633) ; Tradescant, *Musaeum Tradescantianum*, 92 (1656) ; Ray, *Hist. i.* 492 (1686) ; Commelin, *Pl. Us. Hort. Med. Amstel. Cat.* 10 (1698) ; Morison, *Hist.* iii. 436 (1699).

In several works both forms were employed : thus in Aemilius Macer, *De Virtutibus Herbarum*, cap. 49, p. 119 (Basileae, 1559) the chapter is headed " *De Boragine* ", but the spelling *Borrago* occurs in the table of simples following the dedicatory epistle, and in the index. The spelling with two " r "s seems to have been the one more commonly used in the druggists' shops and by the herbalists : thus Joannes Agricola, who mentions "*Borago sylvestris*" and "*Boraginis*"

flores" (Medic. Herb. 30: 1539) states that *Buglossum* is said to be the herb which is commonly called *Borrage*. Similarly Porta, Phytognom. 164 (1591), who has "*Buglossi flores sive vulgaris boraginis*" quotes the semi-popular doggerel "*Dicit borrago gaudia semper ago*", and has the spelling *Borrage* in the Index (l. c. 502). Ryff, Deutsche Apotheck, fol. 9, verso (1573), who accepted the derivation from "*cor*", gave the three forms *Corago*, *Borago* and *Borrage*; Lonicerus, Kreuterbuch 176 (1578), who adopted the spelling *Borago*, mentioned that the species was commonly known as *Borrage*; and Durante, Tesoro della Sanita, 93 (1588) gave both *Borrage* and *Corago*. Stephanus has "*Borrage quasi Corrago*" (De Latinis et Graecis Nominibus Arborum, 28); and Zaluzanius (Meth. Herb. cap. x, fol. Y 2) has "*Borrage quasi Bovago*".

During the period 1735-1751 Linné employed the form *Borrage*: vide Syst. Nat. ed. 1 (1735), Gen. Pl. ed. 1. (1737), and ed. 2 (1742), Hort. Cliff. (1737), Hort. Upsal. (1748), Mat. Med. (1749), Phil. Bot. 32, 103, 141, 167 (1751). In the last work he accepted the derivation of the name from *Corago*, "*Cor agens veteribus*". Probably on this account he subsequently accepted the spelling *Borago*: vide Sp. Pl. ed. 1 (1753), ed. 2 (1762), Gen. Pl. ed. 5 (1754), ed. 6 (1764), Syst. Nat. ed. 10 (1759).

The etymological origin of *Borago* (*Borrage*) being doubtful, and both forms being current in pre-Linnean literature, it cannot be maintained that there is any orthographic error in the "original spelling", *Borago* L. (1753). Hence under Art. 57, that form of the generic name should be used by botanists. In accordance with this result, the correct spelling of the family name is *Boraginaceae* (not *Borraginaceae*, as adopted in Engl. & Prantl., Nat. Pflanzenfam., Engl. Pflanzenreich, etc.).

The case of *Borago* shows that it may be impossible, even after very detailed investigation, to establish the etymological derivation of a generic name, even with a moderate degree of probability. It was doubtless for this reason that the Vienna Congress decided that the "original spelling" of a name (when first effectively published) must be retained, except in so far as that spelling contains *undisputed*, and apparently *unintentional*, typographic or orthographic errors. The onus of demonstrating the existence of such errors lies on the botanist who seeks to modify the name.

5. Brunella or Prunella.

Reference to Pfeiffer's Nomenclator, i. 478, ii. 847, shows that *Brunella* was used by a large number of authors during the period 1700-1857, although the form *Prunella* was more widely accepted. Subsequently *Brunella* was chosen by Bentham (Benth. et Hook. f. Gen. Pl. ii. 1203: 1876), Briquet (Engl. & Prantl., Nat. Pflanzenfam. iv. Abt. 3 A, 241: 1896), and Ascherson & Graebner (Fl. Nordost-deutsch. Flachl. 608: 1899), whereas *Prunella* was adopted by B. D. Jackson (Index Kewensis, ii. 634: 1894).

Schinz and Thellung stated in 1907 that under Art. 57 the correct form of the generic name was *Prunella* (Bull. Herb. Boiss. sér. 2, vii. 340), but the spelling *Brunella* is still current, occurring for example in the following works published since 1905: Blytt, Haandb. Norges Fl. ed. Dahl, 614 (1906), Lázaro é Ibiza, Comp. Fl. Esp. ii. 569 (1907), Krullov, Fl. Altaya, iii. 1045 (1907), Thonner, Blütenpfl. Afr. 507 (1908), Rouy et Foucaud, Fl. France, xi. 271 (1909), Heukels, Fl. Nederl. iii. 245 (1910), Coutinho, Fl. Port. 524 (1913), Vollmann, Fl. Bayern, 623 (1914), Knoche, Fl. Balear. ii. 333 (1922), and Stoyanov & Stefanov, Fl. Bulgar. 935 (1925). Two new species have also been published under *Brunella*, namely *Brunella prunelliformis* Makino (1912) and *B. cretensis* Gandoger (1916), and Panini adopted *Brunella* in a paper on natural hybrids in this genus (Bég. Arch. Bot. ii. 63, 179: 1926).

The earliest mention of the name which I have been able to trace is in the German 'Ortus Sanitatis' (Herbarius zu Teutsch) published at Mainz in 1485, De Herbis, cap. lxxii., as *Brunella*, Brunellen. In the Latin edition of 1491, De Herbis, cap. cclxxix, it appears as *Prunella*, and this spelling was also adopted by Hieronymus von Braunschwyg, Buoch von Distillierung, fol. 1, verso (1515). Brunfels, Herb. iii. 27 (1536) mentioned that *Brunella* was a specific against the disease then known as Die Breüne, and gave the vernacular name as Braunellen. Fuchs, Hist. 622 (1542), who adopted the form *Prunella*, stated that it was known under that name by the general body of physicians and herbalists. Tragus, Hist. 309-312 (1552) chose the spelling *Prunella*, citing the following verse from Hieronymus von Braunschweig: "Braunell so bin ich genant: Ein braune bluom ist mir bekant." He translated this as: "*Prunella* ego vocata sum: Purpureo etenim flore sum praedita". According to this verse, Braunell was so-called because the flowers were "braun" (i.e. purple). On p. 312, however, Tragus derived the *Prunella* or Braunell of Strasburg from the disease 'Die Breune.' He thought that it was a distinct species, being misled by the figure of *Trifolium pratense* erroneously associated with the text of *Brunella* in the third (posthumous) volume of Brunfels's herbal.

The spelling *Brunella* was accepted by the following pre-Linnean authors, among others: Dodoens, Cruydeboek, fol. clxii, recto (1554); Lobel, Obs. 251 (1576); C. Bauhin, Pinax, 260 (1623); Spigelius, Isagoge, 264 (1633); Ambrosini, Phytologia, 112 (1666); Hermann, Hort. Lugd.-Bat. 94 (1687); Rivinus, Ord. Pl. Monopet. 24, t. 29 (1690); Tourn. Élem. 151 (1694), Inst. 182 (1719); Weinmann, Phytanth. Iconogr. i. 190 (1737); Haller, Enum. Stirp. Helv. 636 (1742).

On the other hand *Prunella* was adopted in about the same number of pre-Linnean works including: Anguillara, Semplici, 225 (1561); Pena et Lobel, Stirp. Advers. Nov. 199 (1571); Lonicerus, Kreuterbuch, fol. cxxx, recto (1578); Caesalp. De Plantis 453 (1583); Dalechamps, Hist. 1310 (1586); Tabernaemontanus, Kreuterbuch, ii. 256 (1591); Gerarde, Herball, 507 (1597); Parkinson,

Theatr. Bot. 526 (1640); J. Bauhin, Hist. iii. 428 (1651); Ray, Hist. i. 551 (1686); Morison, Hist. iii. 363 (1699).

Ambrosini (1666) who adopted *Brunella* (Phytolog. 112) has a cross reference, "*Prunella vulgaris* et *Pruneola Officinarum*, lege *Brunella*" (l.c. 442). He derived *Brunella* from the purplish colour of the inflorescence: "*Brunella* dicitur a colore bruno, sive fusco, quo praedita est: hic enim color apud multos brunus vocatur, idest subniger, non plane niger." He mentioned that it was also called *Prunella* on account of the leaves being like those of *Prunus* in shape: "*Prunella* nuncupatur a. forma foliorum, nam folia huius herbae formam foliorum *Pruni* prae se ferunt." Morison, who accepted the spelling *Prunella* (Hist. iii. 363), also considered that that name was derived from the resemblance of the leaves to those of *Prunus*: "*Prunella* a foliorum forma, *Pruni* folia referentium a quibusdam nuncupatur". At the same time he accepted the derivation of *Brunella* from its use as a specific for 'Die Bräune': "*Brunella* ab effectu dicitur; eo quod faucium et linguae ardentibus affectibus, Causo Ungarico, maloque castrensi Die Braun et Brune dictis medeatur".

Linné at first chose the form *Brunella*: vide Syst. Nat. ed. 1 (1735), Hort. Cliff. 316 (1737), Class. Pl. 339 (1738), Gen. Pl. ed. 1, 177 (1737), ed. 2, 279 (1742), Fl. Suec. 180 (1745), Phil. Bot. 34, 121 (1751); Gen. Pl. ed. 5 (1754). In his *Materia Medica*, 108 (1749) he used the botanical name *Brunella*, but cited *Prunella* Pharm. as a synonym.

In his *Flora Lapponica*, 193 (1737) he had adopted *Prunella* and he returned to that spelling in Sp. Pl. ed. 1, 600 (1753), ed. 2, 837 (1763), Fl. Suec. ed. 2, 210 (1755), Syst. Nat. ed. 10, 1106 (1759), ed. 12, 404 (1767), and Gen. Pl. ed. 6, 301 (1764). He did not make the change in the fifth edition of the *Genera Plantarum*, but as he made it in the sixth, the retention of *Brunella* in the fifth edition was evidently due to an oversight. The starting-point of botanical nomenclature being 1753, Linné's deliberate choice of *Prunella* in that year must be accepted as determining the correct name for the genus. Both forms had been current for 250 years, so that there was no "orthographic error" on his part, and even if it could be proved definitely that *Brunella* was the historically earliest and etymologically correct form, this would not affect the position under the International Rules.

6. *Euonymus* or *Evonymus*.

Linné adopted *Evonymus* in Sp. Pl. ed. 1, 197 (1753) and *Euonymus* in Gen. Pl. ed. 5, 91 (1754). Schinz and Thellung (Bull. Herb. Boiss. sér. 2, vii. 190: 1907) adopted the spelling with a "v" on the ground of priority of publication, thus assigning precedence, as regards a generic name, to the first edition of the *Species Plantarum*, which has no generic descriptions, over the fifth edition of

the Genera Plantarum, which contains the corresponding descriptions. Robinson & Fernald (Gray's New Man. Bot. ed. 7, 556: 1908) took the same view. The position held by these authors is based on Art. 38 of the Rules, which validates the generic names of Species Plantarum, ed. 1 (1753), by association with the descriptions given in Genera Plantarum, ed. 5 (1754). The object of that provision was to secure priority for these Linnean generic names over those published by other authors in 1753 or 1754. I venture to think that there was no intention in the minds of those who drafted or voted for Art. 38 that the particular spelling adopted in the 'Species' should have precedence over that adopted in the 'Genera', where the two were different.

The case of *Guerezia* versus *Queria* shows that in order that a generic name in the 'Species' may be validated by the description in the 'Genera' it must be accepted in the latter work. *Guerezia* was published in Sp. Pl. ed. 1, 89 (original leaf 89-90). After the issue of the first part of the 'Species', the leaf 89-90 was reprinted,* the name *Guerezia* being replaced by *Queria*. In the 'Genera' Linné chose *Queria* as the name for the genus, and this later name is accordingly recognised as valid, because it was the one which *appeared with his description* in 1754.

The specific names published on the original leaf 89-90 are valid, since they are accompanied by descriptions. Thus Mattfeld (Fedde, Repert. Beih. xv. 74: 1922) accepted *Minuartia hispanica* L. Sp. Pl. 89 (original leaf 89-90), citing *M. dichotoma* L. l.c. (substitute leaf 89-90) as a synonym. Under Art. 50 Linné was not at liberty to change the name *hispanica*.

When Art. 38 was prepared, the occasional occurrence of different spellings of generic names in the 'Species' and 'Genera' respectively was apparently overlooked, so that no provision was made for this eventuality. I suggest that where there is a difference in spelling, (1) the *more correct* form should be adopted, whether it occurs in the 'Species' or the 'Genera', and that where the two spellings are equally correct, (2) *general usage*, or (3) *established custom in translation* should be followed. Thus the form *Amethystea* L. (Sp. Pl. 21) should be adopted in preference to *Ametystea* (Gen. 13), because it is more correct, being derived from ἀμέθυστος. Similarly *Ortegia* L.† (Gen. 21; Loefl. Iter, 122) should be preferred to *Ortega* L. (Sp. 560) because it is contrary to general usage to employ the unaltered name of a person as a generic name (*Maranta* L. being an exception). *Ludwigia* (Gen. 55) should be preferred to *Ludvigia* (Sp. 118) because it has been more widely adopted, and is furthermore in accordance with Rec. IV b.

*An account of the two leaves which were replaced is given in Bot. Centralbl. lxxvii. 5 (1896).

†Formed from the name of the Spanish botanist Ortega, just as *Pontederia* was formed from Pontedera. As pointed out by Post et Kuntze, Lexic. Gen. Phan. 405 (1903), the best form would have been *Ortegaea*, in accordance with Rec. IVa, but Linné did not employ that form.

In the case of *Euonymus* or *Evonymus*: (1) it is a matter of opinion which is the "more correct" form, and (2) both are very widely employed in botanical literature. *Euonymus* was adopted for example in Benth. et Hook. f. Gen. Pl. i. 360 (1862); Index Kewensis, i. 913 (1893); Rouy et Fouc. Fl. France, iv. 158 (1897); Aschers. & Graebn. Fl. Nordostdeutsch Flachl. 479 (1899); Heukels, Fl. Nederl. ii. 389 (1909); Britton and Brown, Ill. Fl. ii. 490 (1913); Babington, Man. Brit. Bot. ed. 10, 82 (1922); Merrill, Enum. Philipp. Fl. Pl. ii. 480 (1923); Bailey, Man. Cult. Pl. 464 (1924). *Evonymus* was accepted, on the other hand, in Engler & Prantl, Nat. Pflanzenfam. iii. Abt. 5, 199 (1892); Dalla Torre et Harms, Gen. Siphonog. 289 (1901); Lázaro é Ibiza, Comp. Fl. Esp. ii. 88 (1907); Gray's New Man. Bot. 556 (1908); Lindman, Svensk Fanerogamfl. 405 (1918); Schinz & Keller, Fl. Schweiz, ed. 4, Theil 1, 443 (1923); Jávorka, Magyar Fl. 692 (1924); and Rehder, Man. Cult. Trees & Shrubs, 567 (1927). Many other examples might be cited of both forms. As neither form is definitely "more correct" than the other, and as there is no great preponderance in usage either way, resort may be had to the third method suggested above of deciding between alternative names: and since the Greek "ευ" is customarily transliterated as "eu" in botanical names, *Euonymus* should be adopted in preference to *Evonymus*.

The attention of botanists is drawn to the vexed question of the "priority", as regards *generic* names, of Species Plantarum, ed. 1, over Genera Plantarum, ed. 5 (vide p. 294), in order that it may receive adequate consideration before 1930.

XLVI.—TROPICAL AFRICAN PLANTS: IV.*

J. HUTCHINSON AND J. M. DALZIEL.

STERCULIACEAE.

Scaphopetalum amoenum A. Chev. Explor. Bot. Afr. Occid. Franç. 85, nomen; affinis *S. Blackii* Mast., sed foliis elongato-obovatis nervis lateralibus numerosioribus, floribus cymulosis differt.

Frutex usque ad 3 m. altus, ligno mucilaginoso; ramuli pubescentes. *Folia* elongato-obovata, supra medium ad basin angustata, usque ad 18 cm. longa et 7 cm. lata, glabra costa media parce puberula excepta, nervis lateralibus utrinsecus circiter 12 leviter arcuatis a costa sub angulo 65° abeuntibus intra marginem elongatis; petioli 1 cm. longi. *Flores* cymulosi, axillares, pauci; pedicelli 3–4 mm. longi, puberuli. *Calycis lobi* ovati, 6 mm. longi, extra laxe pubescentes. *Petala* carinaeformia, 6 mm. longa, extra minute pubescentia.

Ivory Coast: Bingerville region, *Chevalier* 15519: Bouroukrou, Dec.-Jan., *Chevalier* 16578, 16586, 16896: Indénié, Mar., *Chevalier* 17682, 17788 (type).

*Continued from K.B. 1928, p. 229.

Melochia mollis Hutch. et J. M. Dalz., sp. nov. ; affinis *M. melissifoliae* Benth., sed caulibus et innovationibus ubique pilis sericeis longis dense indutis, bracteis longe linearibus dense plumoso-pilosis differt.

Herba vel suffrutex, ubique pilis longis sericeis induta. *Folia* ovato-lanceolata, acuta, basi rotundata vel truncata, 4–8 cm. longa, 2–3.5 cm. lata, utrinque pilosa, acute serrulata, nervis lateralibus utrinsecus circiter 8, basalibus ascendentibus ; petioli circiter 1 cm. longi, longe plumosi ; stipulae lineares, 1 cm. longae, longe ciliatae. *Flores* glomerati, axillares ; bracteae longissimae, lineares, dense plumoso-pilosae. *Sepala* lineari-lanceolata, 8 mm. longa, longe pilosa. *Petala* 1 cm. longa. *Fructus* subglobosus, 0.5 cm. longus, pubescens.

Liberia : Monrovia, Whyte. Nigeria : Southern Provinces, Eket, Talbot. Shari : Dar Banda, Dec., Chevalier 6573. Eastern Sudan : on the Roah River, Dec., Schweinfurth 2771 (type). Uganda : Mawokota, Febr., Brown 152 ; Busoga, Brown 267 ; Entebbe, Maitland 739 ; Kivuru, May, Dümmer 881 ; Kalungu, Scott Elliott 7359.

Sterculia elegantiflora Hutch. et J. M. Dalz., sp. nov. ; affinis *S. Tragacanthae* Lindl., sed foliis basi leviter cuneatis, petiolis brevioribus, calycis lobis longioribus differt.—*S. oblonga* A. Chev. Explor. Bot. Afr. Occid. Franç. 76, non Mast.

Arbor ; ramuli hornotini molliter tomentosi. *Folia* elliptica, basi leviter cuneata, plus minusve acuminata, 8–14 cm. longa, 5–8 cm. lata, supra glabra, infra tenuiter stellato-pubescentia, nervis lateralibus utrinsecus circiter 12 a costa sub angulo 65° abeuntibus infra prominentibus ; petioli circiter 2 cm. longi, tomentosi ; stipulae mox deciduae, lineari-subulatae, 1 cm. longae. *Flores* pauci, breviter racemosi ; pedicelli 2 mm. longi. *Alabastra* ovoidea, 5 mm. longa, tomentosa.

Ivory Coast : Bouroukrou, Chevalier 16136 bis, 16137 : Sanvi, Chevalier 17693 (type) : Yapo, Chevalier 22316 : Middle Comoé, Chevalier 22633 : Attié, Chevalier 22668.

Sterculia Thompsonii Hutch. et J. M. Dalz., sp. nov. ; foliis ovato-orbicularibus, nervis lateralibus utrinsecus circiter 5, calycis lobis lanatis distincta.

Arbor. *Folia* ovato-orbicularia, basi rotundata vel truncata, breviter acuminata, 9–13 cm. longa, 7–11 cm. lata, nervis lateralibus utrinsecus 5 infra valde prominentibus, tertiariis obliquis arcuatis ; petioli usque ad 5 cm. longi, glabri. *Inflorescentia* non visa. *Calycis lobi* obovati, circiter 4 mm. longi, intra densissime lanati.

Nigeria : Southern Provinces, without locality, Thompson 6.

Vernacular name “Orodo.”

Cola Johnsonii Hutch. et J. M. Dalz., sp. nov. ; affinis *C. cauliflorae* Mast., sed floribus e ramulis foliatis ortis, foliis breviter oblongo-ellipticis minoribus, floribus subsessilibus differt.

Arbor parva; ramuli glabri, cinerei. *Folia* oblongo-elliptica, basi breviter cuneata, obtuse acuminata, 6–12 cm. longa, 2·5–4 cm. lata, infra reticulata, glabra, nervis lateralibus utrinsecus circiter 6 arcuatis; petioli usque ad 1 cm. longi. *Flores* subsolitarii et subsessiles. *Calyx* 1 cm. longus, late campanulatus, extra scabridus, lobis triangularibus acutis margine puberulis. *Ovarium* tomentosum; stylus brevis, tomentosus.

Gold Coast: Kwahu, 580 m., Mar., Johnson 619.

Cola lanata *Bak. f. ex Hutch. et J. M. Dalz.*, sp. nov.; ubique pilis longe plumosis et stellatis brevibus dense induta, floribus in ramis vetustioribus subsessilibus et glomeratis distincta.

Folia digitate composita; foliola ambitu obovata, petiolulata, circiter 35 cm. longa et 15 cm. lata, pinnate 3–5-lobata, utrinque molliter lanato-tomentosa, lobis oblongo-lanceolatis usque ad 4 cm. latis. *Flores* subsessiles, calycis lobi pubescentes.

Nigeria: Southern Provinces, Oban, Talbot 1299.

MALVACEAE.

Hibiscus comoensis *A. Chev. Explor. Bot. Afr. Occid. Franç.* 65, nomen; species foliis ambitu suborbicularibus crasse 6–7-dentato-lobulatis, floribus umbellatis, bracteis epicalycis 5–6 spatulato-oblancoelatis longissimis distinctissima.

Rami setuloso-tomentosi. *Folia* ambitu suborbicularia, circiter 18 cm. diametro, basi cordata, digitate 6–7-nervia et lobulata, supra fere glabra, infra breviter stellato-pubescentia; petioli usque ad 5 cm. longi; stipulae subulatae, 3 mm. longae. *Flores* umbellati; pedicelli usque ad 2·5 cm. longi, pubescentes. *Epicalycis bracteae* 5–6, spatulato-oblancoelatae, calyce multo longiores, superne setosociliatae. *Calyx* campanulatus 6–7 mm. longus, breviter lobatus, extra tenuiter pubescens, lobis triangularibus. *Corolla* circiter 3 cm. longa. *Fructus* ovoideus, 1·5 cm. longus, breviter puberulus, bracteis epicalycis et calyce persistente circumdatus.

Ivory Coast: Middle Comoé, between Akabossué and Ebrinahoué, Dec., Chevalier 22613.

Hibiscus Gourmania *Hutch. et J. M. Dalz.*, sp. nov.; species habitu fruticis parvae, foliis anguste lanceolatis crenatis distincta.—*Gourmania grewiioides* *A. Chev. Explor. Bot. Afr. Occid. Franç.*, 86, nomen.

Frutex parvus, demissus, ramulis scabridis dense stellato-pubescentibus. *Folia* anguste lanceolata, crenata, 5–6 cm. longa, circiter 1 cm. lata, infra parce stellato-pubescentia, ad basin infra prominente trinervis; petioli 1 cm. longi, stellato-pubescentes; stipulae lineares, 5 mm. longae, setosae et stellato-pubescentes. *Flores* axillares, solitarii; pedicelli 3–4 mm. longi. *Epicalycis lobi* circiter 7, lanceolati, 3 mm. longi, stellato-setosi. *Calyx* campanulatus, 9 mm. longus; lobi lanceolato-triangulares, parce stellato-pubescentes. *Corolla* 1 cm. longa. *Fructus* vix 1 cm. longus, depresso-globosus.

French Sudan : Gourma, July, *Chevalier* 24514 (type) ; Mossi, Aug., *Chevalier* 24717.

Kosteletzkya stellata Hutch. et J. M. Dalz., sp. nov. ; affinis *K. adoensi* Hochst., sed foliis pentagonis, pedicellis brevioribus differt.—*Hibiscus solandra* A. Chev. Explor. Bot. Afr. Occid. Franç. 67, non L'Hérit.

Planta usque ad 4 m. alta ; ramuli breviter stellato-pubescentes. *Folia* pentagona, basi lata, circiter 7 cm. diametro, glabrescentia, crenata ; stipulae lineares, parvae. *Flores* axillares, breviter cymosae. *Epicalycis bracteae* 7, lineares, calyce breviores. *Calycis lobi* ovati, 5 mm. longi, pubescentes. *Corolla* 1.3 cm. longa. *Fructus* depressus, prominenter 5-angularis, angulis setosis. *Semina* minute muricata.

Gold Coast : Anum, Nov., *Johnson* 816 (type). Dahomey : Abbo, Feb., *Chevalier* 22965. Nigeria : Southern Provinces ; Iddo Island, *Millen* 44 ; Ebute Metta, *Millen* 53.

MALPIGHIACEAE.

Rhinopteryx Kerstingii Hutch. et J. M. Dalz., comb. nov.—*Acridocarpus Kerstingii* Engl. Bot. Jahrb. 43 : 383 (1909).

French Guinea : without locality, *Pobéguin* 2143. Togo : Sokode-Basari, near Bangeli, *Kersting* 507 (type).

EUPHORBIACEAE.

Maesobotrya edulis Hutch. et J. M. Dalz., comb. nov.—*Baccaurea edulis* A. Chev. Explor. Bot. Afr. Occid. Franç. 563, nomen. *M. cauliflora* Hutch. ex Chipp List Gold Coast Trees, etc. 34, nomen ; valde affinis *M. sparsiflorae* Hutch., sed inflorescentiis e trunco, foliis ellipticis abrupte acuminatis basi rotundatis infra glabris 10–22 cm. longis 5–10 cm. latis undulatis vel subintegris differt.

Ivory Coast : Agniéby valley, *Chevalier* 17116 (type) ; between Soubiré and Yaow, *Chevalier* 17746. Gold Coast : Tanosu, Feb., *Chipp* 264, 348 ; Beyin, July, *Brent* 7 DD.

Drypetes ivorensis Hutch. et J. M. Dalz., sp. nov. ; affinis *D. Talbotii* S. Moore, sed foliis minoribus ellipticis obtuse acuminatis differt.—*D. Pierreana* A. Chev. Explor. Bot. Afr. Occid. Franç. 561, non Hutch.

Frutex usque ad 3 m. altus ; ramuli breviter pubescentes. *Folia* elliptica, obtuse acuminata, basi leviter inaequilateralia, 12 cm. longa, 4 cm. lata, integra vel minute denticulata, glabra, nervis lateralibus utrinsecus 5–6 intra marginem prominenter conjunctis ; petioli 5 mm. longi. *Flores* e trunco glomerati ; pedicelli 8 mm. longi, graciles, glabri. *Alabastra* depressoglobosa, circiter 3 mm. longa, glabra. *Fructus* breviter pedicellatus, globosus, 2–2.5 cm. diametro, breviter pubescens, siccitate transverse rugosus.

Ivory Coast : Bouroukrou, Dec., *Chevalier* 16694 ; between the Middle Sassandra and Middle Cavally Rivers, *Chevalier* 19227 ; Yabas, July, *Chevalier* 19496 (type).

Drypetes Aylmeri Hutch. et J. M. Dalz., sp. nov. ; affinis *D. floribundae* Hutch., sed sepalis extra minute puberulis, pedicellis brevioribus differt.

Arbor parva, ligno albo ; ramuli glabri. *Folia* oblonga, obtuse acuminata, basi breviter cuneata, circiter 16 cm. longa et 5.5 cm. lata, distincte denticulata, glabra, nervis lateralibus utrinsecus 6 arcuatis marginem versus crenato-ramosis ; petioli 1 cm. longi. *Flores* ♂ e trunco glomerati ; pedicelli 5 mm. longi, puberuli. *Sepala* orbicularia, 2.5 mm. longa, extra minute puberula. *Stamina* 8.

Sierra Leone : Jerihun, Sept., *Aylmer* 603.

Croton Collenettei Hutch. et J. M. Dalz., sp. nov. ; affinis *C. macrostachyi* Hochst., sed foliis basi breviter cuneatis obovato-ellipticis glandulis basalibus sessilibus differt.

Arbor circiter 8 m. alta ; ramuli elongati, stellato-puberuli. *Folia* obovato-elliptica, basi breviter cuneata, abrupte acuminata, 7-9 cm. longa, 3.5-5 cm. lata, submembranacea, utrinque sparse stellato-pubescentia, remote et obscure denticulata ; glandulae basales sessiles ; petioli 2 cm. longi, puberuli. *Racemi* elongati, unisexuales, ♂ circiter 20 cm. longi ; axis tomentellus ; flores lactei, fasciculati ; pedicelli graciles, 8-10 mm. longi, puberuli. *Sepala* suborbicularia, 3 mm. longa, extra parce pubescentia. *Flores* ♀ ignoti.

French Guinée : Maceuta, 600 m., May, *Collenette* 15.

Croton penduliflorus Hutch., sp. nov. ; affinis *C. Lehmbachii* Hutch., sed glandulis basalibus longe stipitatis differt.

Arbor ; ramuli mox glabrescentes. *Folia* late elliptica vel ovato-elliptica, breviter et abrupte acuminata, basi rotundata vel late cuneata, 8-14 cm. longa, 5-8 cm. lata, crenata, infra fere glabra ; glandulae basales longe stipitatae ; petioli 3-5 cm. longi, mox glabrescentes. *Racemi* bisexuales, penduli, elongati, usque ad 30 cm. longi ; axis laxo tomentellus ; flores ♂ fasciculati ; pedicelli breves, laxo tomentelli. *Sepala* stellato-pubescentia. *Ovarium* tomentellum.

Sierra Leone : Kennema, May, *Lane-Poole* 269 (type) ; *Aylmer*, 138. Gold Coast : Sra, June, *Mrs. H. W. Moor* 305.

According to Mrs. Moor, the native names are *Nyamrim* (Twi) and *Doodwacho* (Krobo). The wood is used for rafters, and an infusion made from the leaves is used externally for fever.

Tetracarpidium conophorum Hutch. et J. M. Dalz., comb. nov.—*Plukenetia conophora* Muell. Arg. in *Flora* 47 : 530 (1864) ; Prain in Dyer, *Fl. Trop. Afr.* 6, 1 : 949. *Mallotus Preussii* Pax, in Engl.

Bot. Jahrb. 23 : 525 (1896). *Tetracarpidium Staudtii* Pax, Engl.
Bot. Jahrb. 26 : 329 (1899). *Cleidion Preussii* Bak. in Kew Bull.
1910 : 343. *Angostylidium conophorum* Pax et K. Hoffm. in Engl.
Pflanzenr. Euphorb.-Plukenetii.-Epiprinin.-Ricinin. 17 : (1919).
Extends from Sierra Leone to the Belgian Congo.

XLVII.—MISCELLANEOUS NOTES.

The Secretary of State for the Colonies has appointed DR. H. A. TEMPANY, Director of Agriculture, Mauritius, to be Director of Agriculture, Federated Malay States and Straits Settlements. (*K.B.* 1916, p. 277).

MR. H. BRUINS-LICH, Student Gardener, Royal Botanic Gardens, Kew, has been appointed by the Secretary of State for the Colonies, Horticultural Officer, Saint Helena.

MR. F. W. THORNS, Student Gardener, Royal Botanic Gardens, Kew, has been appointed by the Government of the Sudan, Assistant Superintendent of Gardens, Khartoum Province.

RETIREMENT OF MR. WALTER IRVING.—On 2nd August MR. WALTER IRVING retired, under the age limit, from the post of Assistant Curator in charge of the Herbaceous Department.

Mr. Irving came to Kew in October, 1890, as a Student Gardener. He was promoted to Sub-foreman in January, 1893, and a month later was appointed Foreman in charge of the collections of herbaceous and alpine plants, which post he has held ever since. The title of his appointment was changed from Foreman to Assistant Curator in 1922.

In succession to Mr. Irving the Minister of Agriculture and Fisheries has appointed MR. ALEXANDER EDWARDS to be Assistant Curator. Mr. Edwards was for three years with Messrs. Hayes, of Keswick, the well-known rock garden specialists. He then served two years at the Royal Botanic Garden, Edinburgh, as a probationer Gardener, and for the past two years has been a Foreman in the Manchester Public Parks Department.

PROFESSOR H. O. JUEL.—We learn that Prof. Juel, who since 1907 has been Professor of Botany in the University of Upsala and Director of the Botanical Museum, resigned these offices last June. He has been succeeded by PROF. N. E. SVEDELIUS.

JULIO AUGUSTO HENRIQUES.—We record with regret the death at the age of ninety of Prof. J. A. Henriques, for many years Director of the Botanic Garden and Herbarium of the University

of Coimbra. Prof. Henriques was an old and valued correspondent of Kew, especially in connection with his work on the Portuguese flora and the flora of the Portuguese Colonies in West Africa. His botanical contributions were published in the "Boletim de Sociedade Broteriana," the journal which he founded and edited.

JOSEPH NELSON ROSE.—We greatly regret to hear the news of the death of Dr. J. N. Rose, the well-known Associate Curator of the United States National Herbarium. Dr. Rose was born in Indiana on January 11th, 1862, and died after a brief illness on May 4th, 1928.

He had made repeated botanical expeditions in many parts of North and South America, and was known especially for his work on *Umbelliferae* in connection with Professor J. M. Coulter and also on several groups of Succulents, notably *Crassulaceae* and *Cactaceae*, the latter family in co-operation with Dr. N. L. Britton, of the New York Botanical Garden.

Plant Research Institute, New Zealand.—We learn with interest that the New Zealand Government have recently established a Plant Research Institute at Palmerston North, North Island, New Zealand, which is independent of the recently established Massey Agricultural College, situated near the same town.

The new Plant Research Institute is the old Biological Laboratory, Department of Agriculture, enlarged and transformed for the investigation of scientific problems connected with Agriculture.

The Director of the new Institute is Mr. Alfred Cockayne who will also retain his post as Director of the Field Division, Department of Agriculture, and the members of the staff of the Institute are as follows:—Messrs. G. H. Cunningham and J. C. Neill (Mycologists), Dr. H. H. Allan (Systematic Botanist), Mr. E. B. Levy (Pasture Ecologist), Mr. N. R. Foy (Seed testing investigations), Mr. W. B. Reid (Bacteriologist).

A Chemist and a Plant Breeder will shortly be appointed.

The Institute possesses suitable laboratories and a large area of ground for experimental work, and it is hoped to bring together a large collection of hybrid trees and shrubs which form so striking a feature of the vegetation of New Zealand. It is also hoped that in the course of time an Herbarium representing the history of all the plants under investigation will be formed at the Institute.

Sapodilla Plum.—In "De Indische Mercur" of March 28th, 1928, an interesting account* is given of recent experiments in the shipment of the "Sapodilla Plum" or "Chikko" (*Achras Sapota* L.)

*Reprint—"Invoer van Sawa Manila te Amsterdam" door Ir. W. Spoon. No. 35 Berichten van de Afdeling Handelsmuseum van de Kon. Vereeniging Koloniaal Instituut, pp. 1-10, 1928. Published by J. H. de Bussy, Amsterdam.

from Java to Holland. This tropical American fruit is now extensively grown in Malaya and the East Indies and is much relished by both Europeans and Asiatics. In some localities the fruit is produced more or less continuously throughout the year.

For the trial shipments good quality fruit from the fruit districts of west Java was used. The fruit was packed in small crates with coconut fibre, but without paper wrappers, and shipped from Batavia. At first crates containing several layers of fruit were despatched, but it was found that better results were obtained, though at a higher cost, by utilizing flat boxes containing only one layer of fruit: each box containing about three dozen fruits. On the voyage cold storage of $+3^{\circ}\text{C}$. was used for the fruit, which was found to arrive at Amsterdam in excellent condition without having depreciated in flavour or lost any of its natural aroma. At Amsterdam propaganda for disposal of the fruit had been arranged and a printed pamphlet describing the fruit and the manner in which it should be eaten was distributed with each box. The reception the fruit received at Amsterdam is claimed to have been very good.

From an examination of the figures given for charges, freight, etc., the cost of the fruit delivered in Amsterdam is not as high as might be expected on a new undertaking of this nature. In the event of regular shipments being made overhead charges could no doubt be considerably reduced. The total expenditure per box is given at guilders 2.60-2.70, which works out at guilders .08-.09 per fruit (approx. 2d.). The fruit in Java costs guilders 1.50-2.50 per hundred.

F. N. H.

Flora of West Tropical Africa.*—The second Part, concluding Volume i of this Flora, consists of pp. 247-523 and text figures 109-177. It contains the Families *Sterculiaceae*—*Umbelliferae*. This part contains the Families of most economic importance in West Africa. The *Meliaceae*, which includes the "West African Mahogany" (*Khaya ivorensis*) and allied trees exported under the general trade name of Mahogany, and Cedar (*Entandrophragma*), have now been definitely worked out, and for the first time their identity can be ascertained and the confusion which has always existed in connection with these trees is cleared up. The dominant forest Family of Leguminosae is recorded under the three Families *Caesalpiniaceae*, *Mimosaceae*, and *Papilionaceae*, and with the aid of the excellent figures depicting typical fruits of these trees the chief components of the forest will now be readily recognisable. Other Families commonly occurring in the forest, such as the *Sterculiaceae*, *Euphorbiaceae*, *Moraceae*, *Rhamnaceae* and *Sapindaceae*, also come into this Part. Most of these Families were last enumerated in the early volumes of the Flora of Tropical Africa, and the need of an up-to-date treatise embodying the study of the large quantity of

*Price 8s. 6d. The Crown Agents for the Colonies, 4, Millbank, London, S.W.1.

material which has accumulated in the intervening period has been acutely felt for some years by those whose work has in any way been connected with the West African vegetation. The text figures generally have been well chosen and are well reproduced.

The Care of Ornamental Trees.*—During recent years a business called “tree surgery” has developed in the United States of America, and the principles of this business are set out in the book under notice. The chief items dealt with are planting and care of trees, pruning, fertilization (manuring) of shade trees, spraying, cavities and cavity-filling materials, and some ailments of trees. Generally, the advice given is good and to the point, although in some instances the author seems inclined to recommend calling the doctor without much cause. For instance he appears to over-estimate the necessity for feeding trees growing on lawns, and to recommend the application of fertilizers every few years. Whether fertilizers are required depends upon local circumstances. In the British Isles there are many thousands of lawn and park trees up to 100 or more years of age that are well developed and in perfect health, and have never been artificially fertilized. In all its essentials “tree surgery” is the kind of work that has been practised in some places in this country, particularly at Kew, for a considerable number of years under the less pretentious title of “pruning and care of trees,” work that is in every way necessary for the well-being of trees, whether it be carried out by the tree surgeon or the humble garden labourer.

W. D.

Pioneers of Plant Study.†—This Publication was originally planned, and some parts of it written, in collaboration with the late Professor G. S. Boulger. It makes no claim to being a complete history of plant study, but contains nevertheless some interesting features. The first few chapters are devoted to a discussion of the plants of ancient Egypt, Assyria, China, and elsewhere, brought to light by archæological undertakings or mentioned in myth and legend. Then follows a history of the development of the science of Botany, mainly in the form of biographical accounts of botanists and their activities from the period of Aristotle to the 19th century. A chapter is included giving a brief history of the origin and development of the Royal Botanic Gardens, Kew. The work contains an exhaustive index, including the names of all persons mentioned in the book, and a number of portraits of celebrated botanists.

*The Care of Ornamental Trees, by C. F. Greeves-Carpenter. The Macmillan Company, New York (Messrs. Macmillan & Co., Ltd., London), 1928, pp. 70, plates 7. Price 5s. 6d. net.

†Pioneers of Plant Study, by Ellison Hawks. The Sheldon Press, Northumberland Avenue, London, W.C. 2, 1928, pp. x + 288, plates 17. Price 12s. 6d.